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Site Development and Institutional Controls Plan

South Tacoma Field Site
Tacoma, Washington

The Burlington Northern and Santa Fe Railway Company and Amsted Industries Incorporated

K/J 006015.00

March 2000

Kennedy/Jenks Consultants

SITE DEVELOPMENT AND INSTITUTIONAL CONTROLS PLAN
South Tacoma Field Site
Tacoma, Washington

Prepared for

THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY

and

AMSTED INDUSTRIES INCORPORATED

Prepared by

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TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

LIST OF ACRONYMS FOR THE SOUTH TACOMA FIELD SITE DEVELOPMENT AND INSTITUTIONAL CONTROLS PLAN

Amstead	Amsted Industries
bgs	below ground surface
BNR	Burlington Northern Railroad
BNSF	The Burlington Northern and Santa Fe Railway Company
CD	Consent Decree
COCs	chemicals of concern
cPAH	carcinogenic polynuclear aromatic hydrocarbon (cPAHs for plural)
DY	BNR Dismantling Yard
EPA	U.S. Environmental Protection Agency
FS	feasibility study
mg/kg	milligrams per kilogram
O&M	operations and maintenance
OSHA	Occupational Safety and Health Administration
PAH	polynuclear aromatic hydrocarbon (PAHs for plural)
PCB	polychlorinated biphenyl (PCBs for plural)
ppm	parts per million
RA	remedial action
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
ROD	Record of Decision
RY	BNR Railyard
SEPA	State Environmental Policy Act
SOW	Statement of Work
SDIC	Site Development and Institutional Control (Plan)
STF	South Tacoma Field
WAC	Washington Administrative Code

1.0 INTRODUCTION

This Site Development and Institutional Controls (SDIC) Plan presents the information available to reduce the risks to human health and the environment during post remedial action (RA) activities at the South Tacoma Field Superfund site (STF site) in Tacoma, Washington. This SDIC Plan is based on requirements presented in the:

- *Record of Decision (ROD) Commencement Bay South Tacoma Channel South Tacoma Field Operable Unit* (EPA 1994)

- *Statement of Work (SOW) for the Remedial Design and Remedial Action at the South Tacoma Field Operable Unit of the Commencement Bay South Tacoma Channel Superfund Site* contained in the Consent Decree (CD) (EPA 1996)

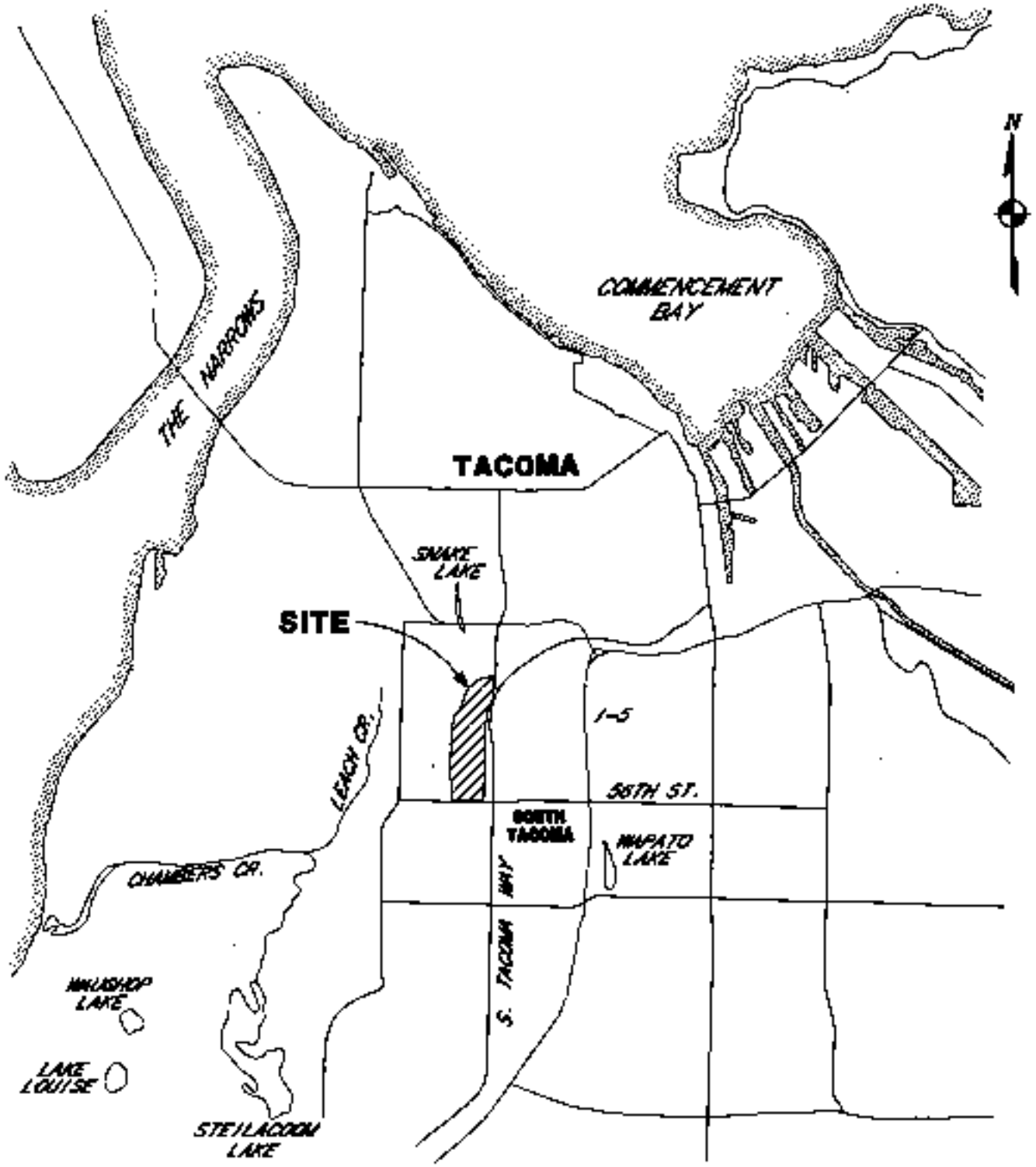
- *Final Remedial Design, South Tacoma Field Site* (Kennedy/Jenks Consultants 1998a).

1.1 SITE DESCRIPTION

The STF site is located in the southwestern portion of the City of Tacoma, Washington, and consists of an industrial property approximately 260 acres in size (Figure 1-1).

1.2 NATURE AND EXTENT OF CONTAMINATION

Industrial activities at the STF site resulted in releases of chemicals of concern (COCs) to site soil and groundwater. A remedial investigation (RI) (Kennedy/Jenks Consultants 1993a,b,c,d,e,f) and feasibility study (FS) (Kennedy/Jenks Consultants 1994) assessed the nature and extent of environmental contamination and evaluated remedial alternatives at the site. For the RI, the STF site was divided into seven areas based on



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SOUTH TACOMA FIELD
TACOMA, WA

SITE LOCATION MAP

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FIGURE 1-1

historical activities (Figure 1-2). From the findings of the RI fieldwork, as well as investigations performed by Amsted Industries (Amsted) under a separate Consent Order with U.S. Environmental Protection Agency (EPA) Region X, the following site conditions were identified:

- Concentrations of arsenic, copper, lead, zinc, carcinogenic polynuclear aromatic hydrocarbons (cPAHs), and polychlorinated biphenyls (PCBs) above action levels identified in the ROD were detected in surface and subsurface soil ("STF soil") in the Burlington Northern Railroad (BNR) Railyard (RY), BNR Dismantling Yard (DY), former Airport area, Former Swamp/Lakebed, and the Amsted Property.

  These COCs were detected at the surface in all areas and extending to depths greater than two feet at the Amsted Property, the western section of the BNR DY, and the southern section of the BNR RY.

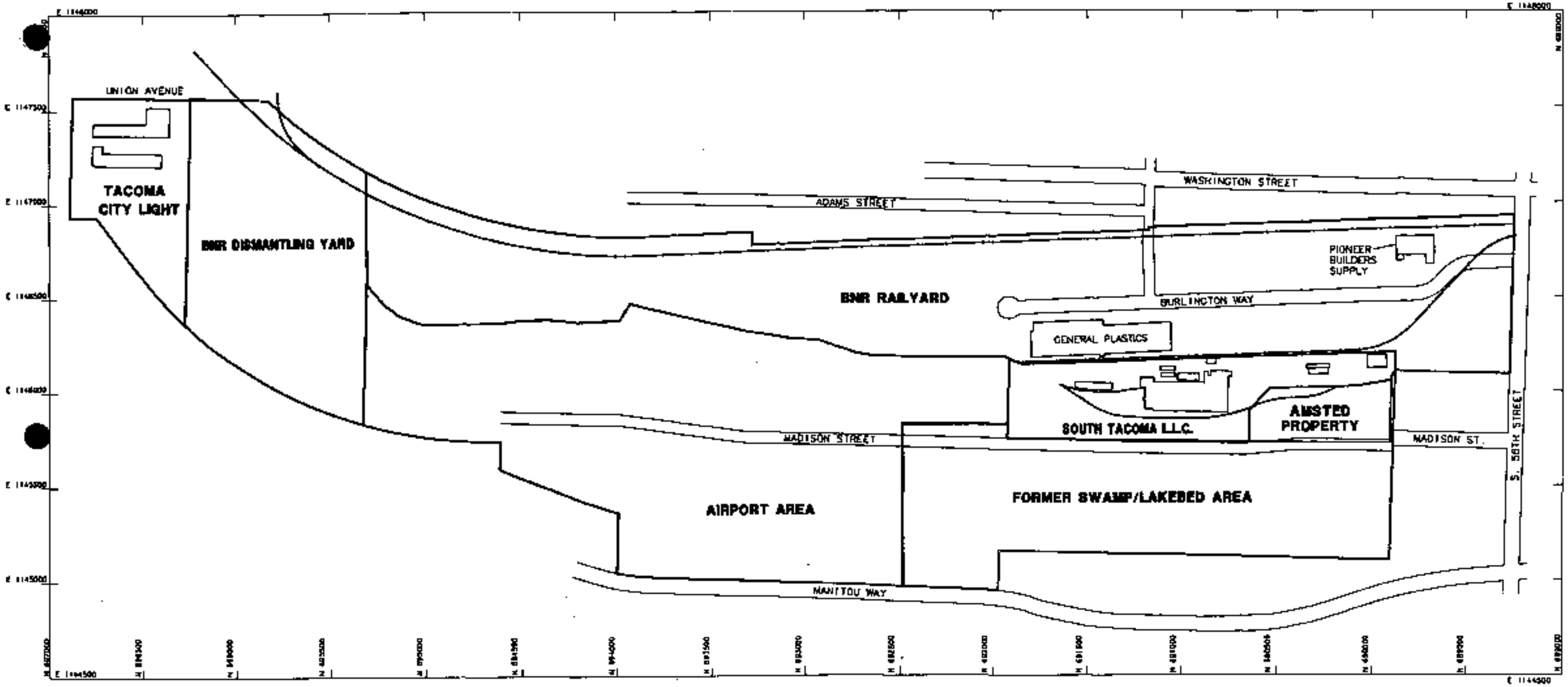
- Groundwater quality at the site does not show evidence of sitewide degradation. However, samples collected from the shallow groundwater at Pioneer Builders Supply contained certain organic chemicals at concentrations above Safe Drinking Water Act maximum contaminant levels.

- A relatively small volume of nearly immiscible, heavy fuel oil floats on the surface of the groundwater table at the Amsted Property.

1.3 RA ACHIEVEMENTS

In general, the STF RA involved the following work:

- STF Soils
  - Excavating and treating (using a phosphate-based reagent) contaminated soil that exceeded hot spot concentration levels defined in Table 9-1 of the ROD and summarized below. The treated soil was consolidated,



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SOUTH TACOMA FIELD
TACOMA, WA

SAMPLING UNIT DESIGNATIONS AT THE STF SITE

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FIGURE 1-2

placed onsite, and covered with clean soil. The cover in this area must be maintained, and any future use must consider potential exposure to contaminated soil.

HOT SPOT CONCENTRATION THRESHOLDS FOR STF SITE SOIL

Hot Spot Concentration Thresholds	
Arsenic	570 mg/kg[a]
Lead	18,000 mg/kg
cPAHs (Total)	50 mg/kg
PCBs (Total)	50 mg/kg
Copper	45,000 mg/kg

Source: ROD Table 9-1 (EPA 1994)

Note:
(a) mg/kg = milligrams per kilogram

- Excavating and disposing offsite soil from Pioneer Builders Supply contaminated with PCBs above 50 milligrams per kilogram (mg/kg).
- Excavating, consolidating, and capping onsite soil that exceeded site capping levels defined in Table 9-2 of the ROD (summarized below), and falling below hot spot levels. Soil was consolidated to the extent practicable and capped with a clean soil cover. This soil is termed "consolidated." Covers in areas exceeding capping levels must be maintained and future use limited to industrial uses. Any disturbance of the cover must consider potential exposure to contaminated soil. Residential use requires more stringent cleanup levels and is therefore not appropriate in these areas. Deed restrictions have been placed on these areas of the site that reflect their limited allowable use.

SOIL CAPPING LEVELS FOR THE STF SITE

Capping Levels	
Arsenic	200 mg/kg
Lead	1,000 mg/kg
cPAHs (Total)	20 mg/kg
PCBs (Total)	10 mg/kg

Source: ROD Table 9-2 (EPA 1994).

Other RA activities included:

- Removing and disposing of buried tanks, drums, and their contents. Contaminated soil and solid waste associated with these tanks and drums were also removed from the site and disposed offsite in a permitted facility.
- Monitoring air during earth moving activities to assess airborne contaminant emissions in the work area and at the site boundary.
- Covering contaminated soil with a soil cap in the Former Swamp/Lakebed, the BNR DY, and other locations where chemicals were detected in subsurface soil above capping levels but that could not be cost effectively excavated and consolidated. This soil is termed "contained." Covers must be maintained in these areas, and future use needs to consider potential exposure to contaminated soil.
- Implementing institutional controls to prohibit residential development throughout the site and to reduce activities that could result in exposure to chemicals in soil.

Post RA activities planned for the STF site include:

- Groundwater sampling at Pioneer Builders Supply. Potential RA at this site is being evaluated based on previously collected groundwater data (Kennedy/Jenks Consultants 1996b). Additional actions, if any, will be described in subsequent documents.

- Routine operation and maintenance (O&M). Remediation features at the STF site will be inspected periodically and groundwater will be monitored. Details are described in the STF O&M Plan (Kennedy/Jenks Consultants 2000).

- Other investigations. The Burlington Northern and Santa Fe Railway Company (BNSF) is investigating the presence of residual petroleum hydrocarbons detected in soil samples collected from the center of the BNR RY and the possible presence of hydrocarbons in groundwater in the area

under the Washington State Department of Ecology's Voluntary Cleanup Action Plan.

1.4 SDIC PLAN ORGANIZATION

This SDIC Plan contains the following sections:

- Section 2.0 presents the Site Development Plan.
- Section 3.0 presents the Institutional Controls Plan.
- Appendix A contains the record drawings showing the locations of the consolidation areas and results of the RA.
- Appendix B contains safety procedures for handling potentially impacted soil during site development activities.
- Appendix C contains a fact sheet that will be sent to residents and businesses located within approximately 1/2 mile of the STF site.

2.0 SITE DEVELOPMENT PLAN

This section presents a guide regarding contamination issues to be considered during future development of the STF site. Section 2.1 describes current zoning for the STF site and the City of Tacoma's published plan for development concepts for the South Tacoma area, including the STF site. Section 2.2 describes areas of the site that are capped and contain residual COCs where exposure should be minimized. Section 2.3 discusses considerations for future site development. Section 2.4 presents methods that should be used to modify or replace soil covers if contaminated soil is disturbed.

2.1 ZONING AND SOUTH TACOMA DEVELOPMENT PLAN

The STF site is suitable for industrial development. All current site uses are industrial, and except for the northwest corner (which is zoned residential), the site is zoned heavy industrial. The City of Tacoma's South Tacoma Plan designates the site as an important part of the city's future industrial expansion area (Tacoma 1985).

The South Tacoma Plan also:

- States the South Tacoma industrial area (which includes the STF site) has been identified as a location for filling "A pressing need for light industrial space in planned office/industrial parks..." (page 24).

- Recommends heavy industrial districts including provisions for beautification, quality architectural and site design, buffer yard standards to provide the necessary separation of incompatible uses, and maintenance of historically significant structures (page 24).

- Desires to preserve recharge of the underlying drinking water aquifers as is feasible to ensure an adequate supply of water (page 41).

2.2 LOCATION OF CONTAMINATED SOIL

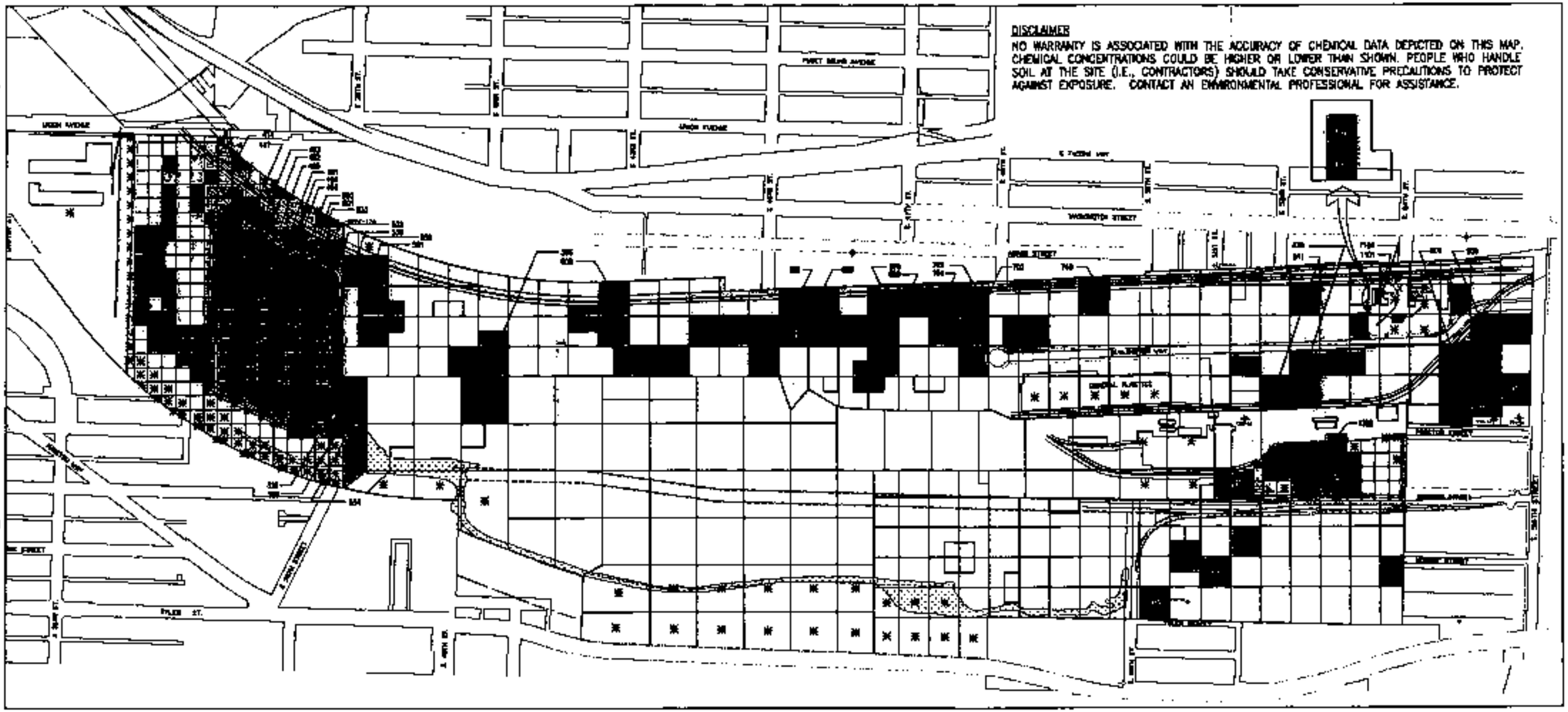
Figure 2-1 and the RA record drawings (Appendix A) show locations where contaminated soil is known to remain onsite. Concentrations of the contaminated soil are based primarily on composite samples collected from the corners and center of each grid during the STF RI (Kennedy/Jenks Consultants 1993a,b,c,d,e,f) or the RA. These chemical concentrations are estimates of actual soil conditions in a particular grid location. **Chemical concentrations could be higher or lower than those shown in Figure 2-1 or in Appendix A.** Thus, sampling may need to be performed if suspicious material is encountered or if soil is to be disposed of onsite. However, the available data are useful for estimating residual risks to human health and the environment and for developing safeguards for individuals that come in contact with contaminated soil during construction or earth handling activities (see Appendix B).

Figure 2-1 presents the following information:

- Unshaded grids identify areas where soil has chemical concentrations below residential cleanup levels specified in the ROD (Section 1.3) based on sampling results collected during the RI (Kennedy/Jenks Consultants 1993a,b,c,d,e,f).

- Brown () grids identify remediated areas where subsurface soil has chemical concentrations below residential cleanup levels based on sampling during the RA. These grids are covered by at least 6 inches of clean soil and vegetation.

- Yellow () and green () grids identify locations that have chemical concentrations in soil that are above residential cleanup levels but below STF site capping levels (Section 1.3). Chemical concentrations in these grids are appropriate for industrial locations (as defined in the Washington Model Toxics Control Act Cleanup Regulation). The green grids were remediated and are covered by at least 6 inches of clean soil and vegetation. Individuals (for


DISCLAIMER
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LEGEND
GRID NOT SAMPLED DURING RI OR RA
GRID BELOW RESIDENTIAL CLEANUP LEVELS (ALL CHEMICALS OF CONCERN) BASED ON RI OR RA DATA
REMEDIATED GRID BELOW RESIDENTIAL CLEANUP LEVEL (CAPPING CHEMICALS ONLY) BASED ON RI OR RA DATA; GRID COVERED WITH AT LEAST 6" CLEAN SOIL AND HYDROSEEDED
GRID ABOVE RESIDENTIAL CLEANUP LEVEL (ALL CHEMICALS OF CONCERN) BUT BELOW CAPPING LEVELS (CAPPING CHEMICALS ONLY) BASED ON RI DATA
REMEDIATED GRID ABOVE RESIDENTIAL CLEANUP LEVEL (ALL CHEMICALS OF CONCERN) BUT BELOW CAPPING LEVELS (CAPPING CHEMICALS ONLY) BASED ON RI AND RA DATA
GRID ABOVE CAPPING LEVELS; COVERED WITH AT LEAST 1 FOOT OF SOIL OR CAPPED WITH ASPHALT; MAINTENANCE REQUIRED; SEE TABLE 2-1 FOR CAPPING EXCEEDENCES
GRID POTENTIALLY ABOVE CAPPING LEVELS; NOT REMEDIATED; SAFETY PRECAUTIONS REQUIRED; SEE TABLE 2-1 FOR CAPPING EXCEEDENCES
DRAINAGE CHANNEL
RAILROAD TRACKS
FENCE
BURIED GEOTEXTILE; IDENTIFIES LIMIT OF TREATED OR CONTAMINATED SUBSURFACE SOIL
CAPPING LEVELS
ARSENIC 200 mg/kg
LEAD 1,000 mg/kg
cPAHs (TOTAL) 20 mg/kg
PCBs (TOTAL) 10 mg/kg
NOTE:
1) NO SAMPLING/REMEDIATION CONDUCTED WITHIN STRUCTURES, BURLINGTON WAY RIGHT OF WAY, OR PAVED AREAS; EXCEPT AS NOTED.
N
0 250 500
APPROXIMATE SCALE IN FEET
Kennedy/Jenks Consultants
SOUTH TACOMA FIELD
TACOMA, WA
POST-REMEDIAL ACTION SITE CONDITIONS
006015.00/POSK015
TSWSF 20.2 Doc# 1176975 FIGURE 2-1

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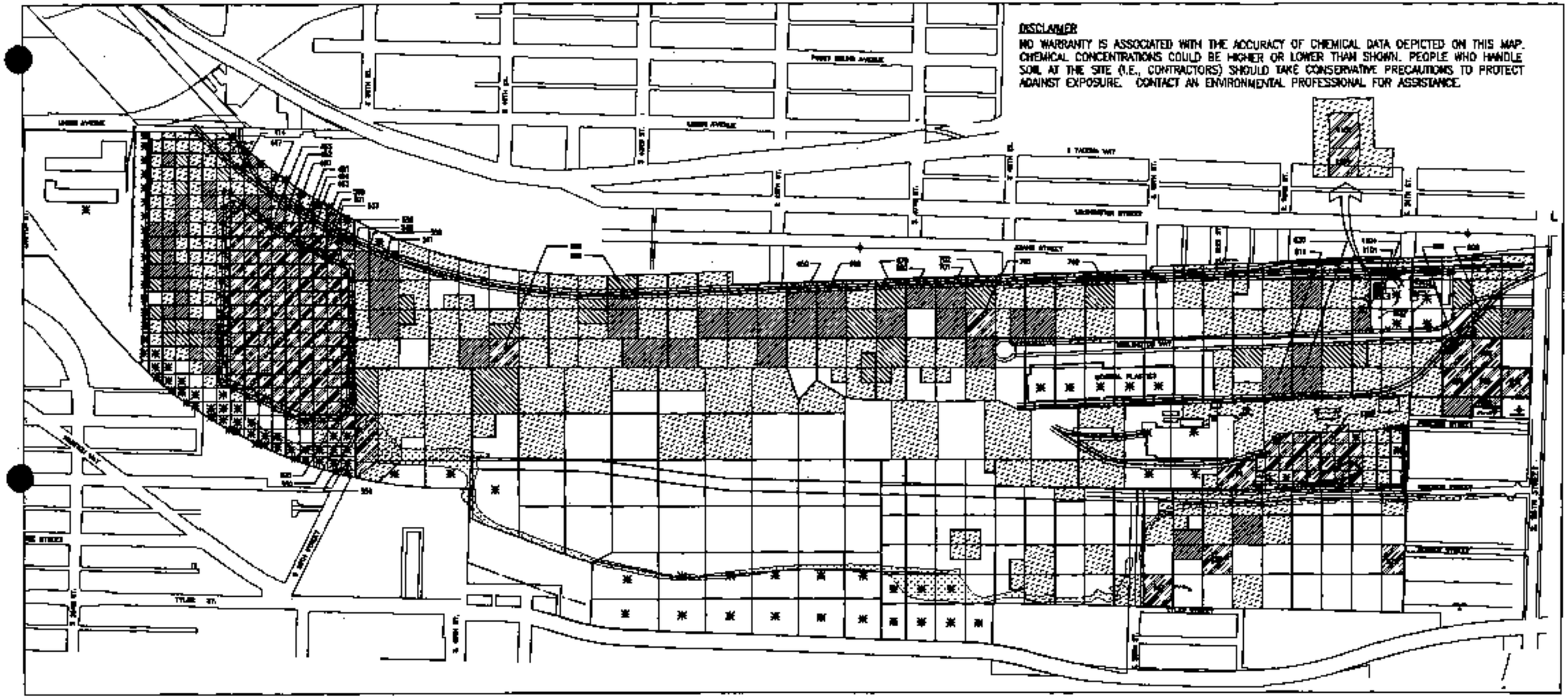

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- DRAINAGE CHANNEL
- RAILROAD TRACKS
- FENCE
- BURIED GEOTEXTILE; IDENTIFIES LIMIT OF TREATED OR CONTAMINATED SUBSURFACE SOIL

CAPPING LEVELS

ARSENIC	200 mg/kg
LEAD	1,000 mg/kg
cPAHs (TOTAL)	20 mg/kg
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APPROXIMATE SCALE IN FEET

Kennedy/Jenks Consultants

SOUTH TACOMA FIELD
TACOMA, WA

POST-REMEDIAL ACTION SITE CONDITIONS

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FIGURE 2-1

example, construction workers) who may come in contact with soil in these two areas should follow appropriate health and safety guidelines.

- Blue grids () identify areas where chemical concentrations in subsurface soil exceed capping levels. Soils in these grids are covered with asphalt or by at least 1 foot of clean soil. Treated soils are also located in specified locations (see Figure 2-1) and are covered by geotextile fabric. Provided that these caps are maintained or covers are incorporated into future development, no significant health risks for casual human contact are expected. However, chemicals in the underlying soil could pose an unacceptable risk to human health. Table 2-1 presents information regarding chemical concentrations detected in soil within these grids during previous investigations (Kennedy/Jenks Consultants 1993a,b,c,d,e,f). If contact with contaminated material is required, only properly trained individuals should handle this soil (see Appendix B).

- Purple () grids identify areas where soil may be above capping levels but not remediated because of safety or operational reasons. COCs at concentrations that could pose a threat to human health could be present in surface soil. Table 2-1 presents information regarding chemical concentrations detected in soil within these grids during previous investigations (Kennedy/Jenks Consultants 1993a,b,c,d,e,f). Only properly trained individuals should handle this soil (see Appendix B).

2.3 SITE DEVELOPMENT

Site owners may consider selling some or all of their property at the STF site. The future use of this property is unknown. However, use of the site is anticipated to be predominantly industrial in accordance with the City of Tacoma's zoning requirements and the South Tacoma Plan (Tacoma 1985).

TABLE 2-1

LOCATION AND DEPTH OF CAPPING EXCEEDENCES
South Tacoma Field

Location Number	Chemical Of Concern	Concentration (mg/kg)	Depth (feet bgs)
Grid Capped with Soil/Asphalt			
452	Lead	1,100	2
453	Lead	3,100/3,600[a]	2
460	Lead	4,600	3
461	Lead	3,300	2
493	Lead	9,600	2.5
494	Lead	760/2,100[a]	2.5
500	Lead	4,400	3
501	Lead	1,400	2
520	Lead	1,500	3
532	Lead	4,100	2
533	Lead	1,200	2.5
538	Lead	2,000/1,600[a]	2
550	Lead	1,100	1
554	Lead	1,970	2
586	PCBs	18	4.5
703	Lead	2,060	2
787	PAHs	23.6	7
786	PAHs	20.6	7
791	Lead	2,360	7
879	Lead	1,100	12
1101	PCBs	11	17
1104	PCBs	39	20
1392	Lead	1,620	0
Portion of Grid Not Capped (Not Remediated)[b]			
414	Lead	4,840	0
417	Lead	1,400	0
494	Lead	3,140	0
533	Lead	22,700	0
537	PAHs	26.7/35.5[a]	0
556	Lead	2,350	0
561	Lead	3,040	0
606	Lead	1,060	0
550	Lead/Arsenic	1,990/395	0
560	Lead	2,830	0
579	Lead	1,260	0

TABLE 2-1

LOCATION AND DEPTH OF CAPPING EXCEEDENCES
South Tacoma Field

Location Number	Chemical Of Concern	Concentration (mg/kg)	Depth (feet bgs)
650	Lead	1,610	0
701	Lead	1,240	0
702	Lead	1,210	0
740	Lead	2,720	0
811	Lead	2,880	0
830	Lead	1,220	0
900	PAHs	24.5	0
906	Lead	2,070	0

Notes:

(a) The second value represents the analytical result of a field duplicate sample.
(b) The second value represents the analytical result of a split sample collected by ICF Kaiser.
(c) Small portions of these grids are not capped due to their location near an active rail line. Extent of area not capped is:
- Within 15 feet of centerline of track for grids 414, 417, 494, 533, 537, 559, 561, 606, and 740.
- Within 15 feet west of the tracks and east of the tracks to the property line for grids 650, 660, 679, 680, 701, and 702.
- Within 8 feet of center line of spur tracks in grids 811, 830, 900, and 906.

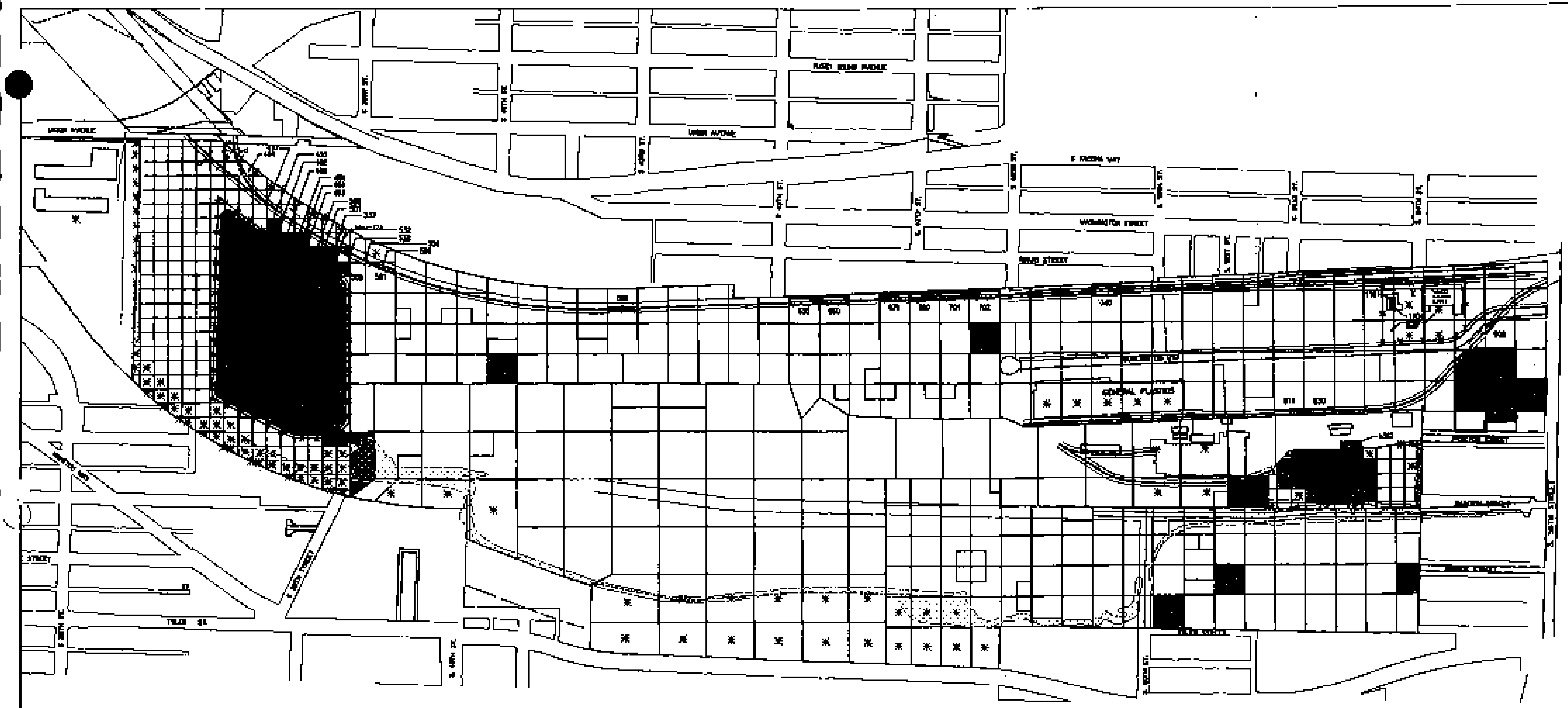
(d) The second value represents the analytical result of a second sample collected 5 March 1992.

Because the STF site has potential for industrial development (Tacoma 1985), the RA was designed to minimize impacts to potential future site uses. Consolidating contaminated soil resulted in large areas of land being available for development, and the consolidation areas are located to facilitate development. The institutional controls plan (Section 3.0) discusses actions to prohibit residential use of the site and measures to inform current and future workers and nearby residents of site hazards.

2.4 MODIFICATION OR REPLACEMENT OF COVERS

Most areas of the site with contamination levels considered safe for an industrial exposure scenario are capped with soil or asphalt. The soil and asphalt covers placed onsite are designed to minimize direct contact with the hazardous substances remaining above capping levels at the STF site. Although industrial development many proceed with proper safeguards, any activity that disturbs the integrity of the covers should be minimized. Those grids that have soil/asphalt covers or were not remediated due to their location near active rail lines are shown on Figure 2-2. Remediated grids have a minimum 1 foot cap and need to be maintained. The center of these grids are marked in the field with a metal plug embedded in concrete, except for the grids within the fenced consolidation area at the north end of the site, the Amsted Property, and portions of grids adjacent to railroad tracks that could not be safely remediated. A buried geotextile fabric covers treated soil in the BNR DY consolidation area and Amsted Property. Buried geotextile fabric also covers soil with elevated concentrations of COCs in the southern section of the BNR RY. In all areas, the geotextile fabric is covered by at least 1 foot of clean soil.

Prior to proceeding with any project within the consolidation/containment (containment) areas, the proposed project should be evaluated to assess whether the project goals can be met without disturbance of or encroachment on the containment areas. If the containment covers need to be disturbed, the work should be performed to protect workers, owners, tenants, and the public and to prevent releases of contaminants. In addition, special precautions must be taken when handling this soil. (See remainder of this section, Section 3.3, and the Safety Procedures presented in Appendix B.)



LEGEND

Symbol	Description
✳ (box with asterisk)	GRID NOT SAMPLED DURING RI OR RA
Solid black box	GRID ABOVE CAPPING LEVELS; COVERED WITH AT LEAST 1 FOOT OF SOIL OR CAPPED WITH ASPHALT; MAINTENANCE REQUIRED
Speckled black box	GRID POTENTIALLY ABOVE CAPPING LEVELS; NOT REMEDIATED; SAFETY PRECAUTIONS REQUIRED
Dotted area	DRAINAGE CHANNEL
Heavy line	RAILROAD TRACKS
Line with x marks	FENCE
Heavy outlined box	BURIED GEOTEXTILE; IDENTIFIES LIMIT OF TREATED OR CONTAMINATED SUBSURFACE SOIL

CAPPING LEVELS

ARSENIC	200 mg/kg
LEAD	1,000 mg/kg
cPAHs (TOTAL)	20 mg/kg
PCBs (TOTAL)	10 mg/kg

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N

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APPROXIMATE SCALE IN FEET

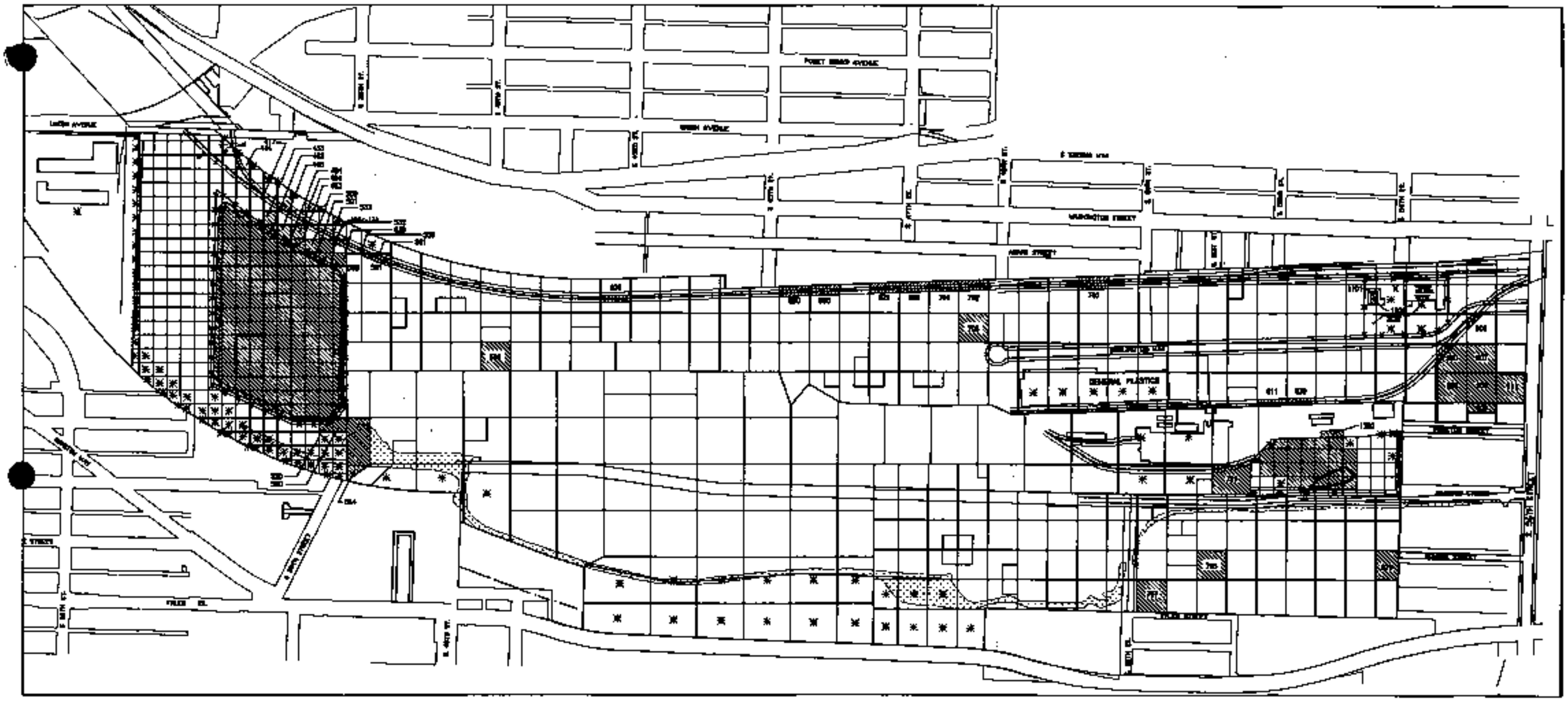
Kennedy/Jenks Consultants

SOUTH TACOMA FIELD
TACOMA, WA

MAINTENANCE GRIDS

006015.00/P9SK004

FIGURE 2-2



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0 250 500
APPROXIMATE SCALE IN FEET

Kennedy/Jenks Consultants

SOUTH TACOMA FIELD
TACOMA, WA

MAINTENANCE GRIDS

006015.00/P9SK004

FIGURE 2-2

To the extent feasible, future development of the site should use containment areas for uses that minimize disturbance of the containment areas (i.e., parking lots, parks, landscaped areas). If site development includes structures within the containment areas, structures with lightweight, spread, and/or shallow foundations should be constructed, whenever possible. Regulatory design procedures should be followed (EPA 1993).

Potential conditions that may result in modifications to the covers include, but are not limited to, installation of buried utilities, placement of pavement materials, construction of structures, and removal of all or portions of the containment areas. Unless contaminated soils are removed offsite (for proper disposal), the area where work occurs should be capped again. Containment area modifications should be recorded on as-built drawings.

No development of the fenced containment area in the BNR DY or the Amsted Property is currently planned. However, these areas could reasonably and safely be developed. Possible development includes industrial, commercial, and recreational uses. For example, the fence could be removed, and access could be provided if the cap is properly maintained. Remediated areas could be incorporated into development activities for use as building foundations, parking lots, or storage facilities. The O&M Plan (Kennedy/Jenks Consultants 1999) describes how this area could be safely used, including removal of the fence, after the site is developed. Potential development will be discussed with the EPA and other regulatory agencies.

2.4.1 Best Management Practices

The following best management practices should be implemented, as applicable, to minimize exposure to the hazardous substances when covers are disturbed in the containment areas:

- If possible, schedule work when significant precipitation is not anticipated. This will limit run on into contaminated areas, reduce leaching of contaminants, and minimize the offsite transport of contaminants on construction vehicles.

- Minimize the surface area and depth of the work in the containment area.

- Shore excavations, if necessary, to minimize the amount of contaminated soil removed.

- Test soil removed from the containment area to assess proper disposal requirements. It is anticipated that soil removed offsite would be disposed of in a Resource Conservation and Recovery Act (RCRA) Subtitle D or RCRA Subtitle C facility. The soil should be excavated into lined bermed areas or directly into transport vehicles to prevent contamination of the clean cover material or adjacent areas.

- Take precaution in handling soil that has been treated because this soil contains high concentrations of metals. Appendix A contains drawings showing the locations of this soil at the Amsted Property and the BNR DY consolidation areas.

- Dust control measures should be implemented and air monitoring should be performed during excavation of soil in the containment area to prevent the migration of hazardous substances through fugitive emissions.

- If buried utilities are placed in the containment area, the contaminated soil removed from the trenches should be disposed in an appropriate RCRA landfill and not used as backfill. The trenches should be backfilled with clean material to minimize exposure of maintenance workers to hazardous substances. The location of any utility placement/clean soil placement should be recorded on as-built drawings that are provided to site owners/tenants. If possible, future utility activities should be confined to the clean backfill areas to minimize exposure to contaminated soils.

In addition, the following conditions apply to work performed in the containment areas:

- In accordance with the CD, EPA must approve in writing any modification of the containment area that may expose contaminated soil to the environment (EPA 1996).

- Projects involving clearing, excavation, filling, or grading within the containment areas could require compliance with the requirements of the City of Tacoma's Building and Land Use Services Division. If the volume of soil is greater than 500 cubic yards, a State Environmental Policy Act (SEPA) review of the project is required.

- Contractors with the proper training and hazardous materials certification should be used to complete work within the containment areas.

- Appropriate personal protective equipment should be worn during containment area modification activities, and a worker health and safety plan prepared.

3.0 INSTITUTIONAL CONTROLS PLAN

This section describes the plan for implementing institutional controls at the STF site. Section 3.1 provides a summary of the institutional controls to be implemented at the STF site. Section 3.2 describes grants of access and use restrictions for real property that have been implemented at the site. Section 3.3 presents the safety procedures for reducing contact with soil containing concentrations of COCs above cleanup levels and capping levels. Section 3.4 describes the educational program for informing nearby residents and workers about hazards remaining at the site.

3.1 SUMMARY

As part of its obligations under the CD, the site owners have agreed to implement certain institutional controls on the STF property. In summary, these institutional controls generally include:

- Granting EPA access to the site to monitor/inspect the site
- Limiting land use to industrial purposes
- Assuring maintenance of caps that contain contaminated materials
- Prohibiting groundwater use in the vicinity of Pioneer Builders Supply
- Recording restrictive covenants and leases with the Pierce County Auditor
- Notifying EPA of ownership transfers or lease agreements regarding the property
- Developing safety guidelines for potential future site workers

- Developing an educational fact sheet for distribution to nearby residents and businesses.

These controls are further discussed below.

3.2 GRANTS OF ACCESS AND IMPLEMENTED USE RESTRICTIONS

BNSF and Amsted have implemented use restrictions on the property (Property) they own at the site. Use restrictions include granting EPA and its representatives access to:

- Monitor the work
- Verify any data or information submitted to the United States
- Conduct investigations relating to contamination at or near the site
- Obtain samples
- Assess the need for planning or implementing additional response actions at or near the site
- Inspect and copy records, operating logs, contracts, or other documents maintained or generated by Amsted and BNSF, or their agents (consistent with Section XXIV of the CD)
- Assess BNSF's and Amsted's compliance with the CD.

Restrictions include the following (unless approved by EPA in writing):

- The Property shall not be used for residential purposes.

- No action shall be taken or suffered which may: (1) expose contaminated soil to the environment, or (2) disturb the integrity or effectiveness of any surface cap on the Property where the disturbance causes the release or threatened release to the environment of hazardous substances in excess of site cleanup standards regardless of whether such cap was established as a requirement of the ROD.

- Groundwater from the restricted use area of the Pioneer Builders Supply Property, as determined during remedial design, shall not be used as a drinking water source until groundwater cleanup levels are achieved as defined in Table 9-4 of the ROD.

3.2.1 Ownership Transfer

At least 30 days prior to any conveyance of a title or leasehold interest in the Property, the owner of the Property shall give written notice of the access obligations and use restrictions that the Property is subject to and of the CD to the grantee and written notice to EPA of the proposed conveyance, including the name and address of the grantee, and the date on which notice of the CD was given to the grantee.

BNSF and Amsted (by separate agreements) have also granted to another owner of property at the site who is a party to the CD an Environmental Protection Restrictive Covenant and Access Easement (Covenant). This Covenant:

- Identifies the access obligations and use restrictions described above, and states the obligations and restrictions are binding upon transfer of property of the site owner.

- States the restrictions are a benefit to the other party's land, and this benefit is transferred when the other party's property is transferred.

- Authorizes the United States to enforce compliance with the restrictions.

3.2.2 Property Leases/Tenants

In addition to these Covenant requirements, the site owners will include a lease prohibition that describes the restrictions described above when transferring a leasehold interest in property at the site. The lease prohibition will identify the access and other restrictions described above and states these restrictions are binding on other lessees or other parties acquiring an interest in property at the site.

3.2.3 Recording of Restrictions

BNSF and Amsted have recorded the Restrictive Covenant with the Auditor's Office of Pierce County, Washington, and will record any lease of the property at the site with the Auditor. In addition, BNSF and Amsted will provide a copy of this plan and the O&M Plan (Kennedy/Jenks Consultants 2000) to the new site owners and tenants if these plans are applicable to a property transfer or leasehold.

3.3 SAFETY PROCEDURES

3.3.1 Physical Safety Measures in the BNR DY, BNR RY, and Amsted Property

Consolidated soil in the BNR DY, BNR RY, and Amsted Property has been covered with at least 1 foot of clean soil. The BNR DY and Amsted Property areas have been fenced. These areas will remain fenced (until potential development plans are implemented that address future safety procedures as described in the O&M Plan or other procedures that could eliminate the need for fencing). Gates in areas that are

fenced will remain locked. Access to the containment areas will be limited to the current site owners (or their authorized designees) and EPA representatives. "Keep Out" signs have been posted on the containment area fences.

Procedures for routine inspection and maintenance of the soil covers and site security measures of the containment areas are presented in the O&M Plan (Kennedy/Jenks Consultants 2000).

3.3.2 Safety Procedures Manual

Appendix B contains safety procedures describing the methods to inform site occupants of the potential risks remaining at the site and identifying potential safety procedures to be taken. This document will be distributed to property owners who in turn will distribute copies to lessees and contractors.

It is assumed that contractors working at the site will be hired only by the owners and lessees. For any earth work, the owners and lessees will only use contractors who can provide the appropriate Occupational Safety and Health Administration (OSHA) health and safety training to perform work in areas where hazardous substance may be encountered. Furthermore, the owners and lessees will inform their contractors of the nature and extent of known hazardous substances in the areas of the site where the work will be performed and provide them with a copy of the safety procedures.

3.4 EDUCATIONAL PROGRAM

Appendix C contains a fact sheet that will be distributed to approximately 5,000 residents and businesses located within approximately 1/2 mile of the site. The residents and businesses were identified from a purchased mailing list. The fact sheet will be mailed within 60 days after EPA notifies the Settling Defendants that RA is completed.

REFERENCES

Kennedy/Jenks Consultants. 1993a. South Tacoma Field Superfund Site, Remedial Investigation Report, Volume 1 of 6. Final Report dated 1 February 1993. Prepared for South Tacoma Field Site Group. Kennedy/Jenks Consultants, Federal Way, WA.

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Kennedy/Jenks Consultants. 2000. Operation and Maintenance Plan, South Tacoma Field Site. Report dated March 2000. Prepared for The Burlington Northern and Santa Fe Railway Company and Amstad Industries. Kennedy/Jenks Consultants, Federal Way, WA.

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U.S. Environmental Protection Agency. 1993. Geotechnical Systems for Structures on Contaminated Sites. EPA 530-R-93-002. U.S. EPA, Solid Waste and Emergency Response, Washington, D.C.

U.S. Environmental Protection Agency. 1994. Record of Decision, Commencement Bay South Tacoma Channel, South Tacoma Field Operable Unit. EPA Region 10, Seattle, WA.

U.S. Environmental Protection Agency. 1996. South Tacoma Field Consent Decree. EPA Region 10, Seattle, WA.

Appendix A

Record Drawings

SOUTH TACOMA FIELD
REMEDIAL DESIGN

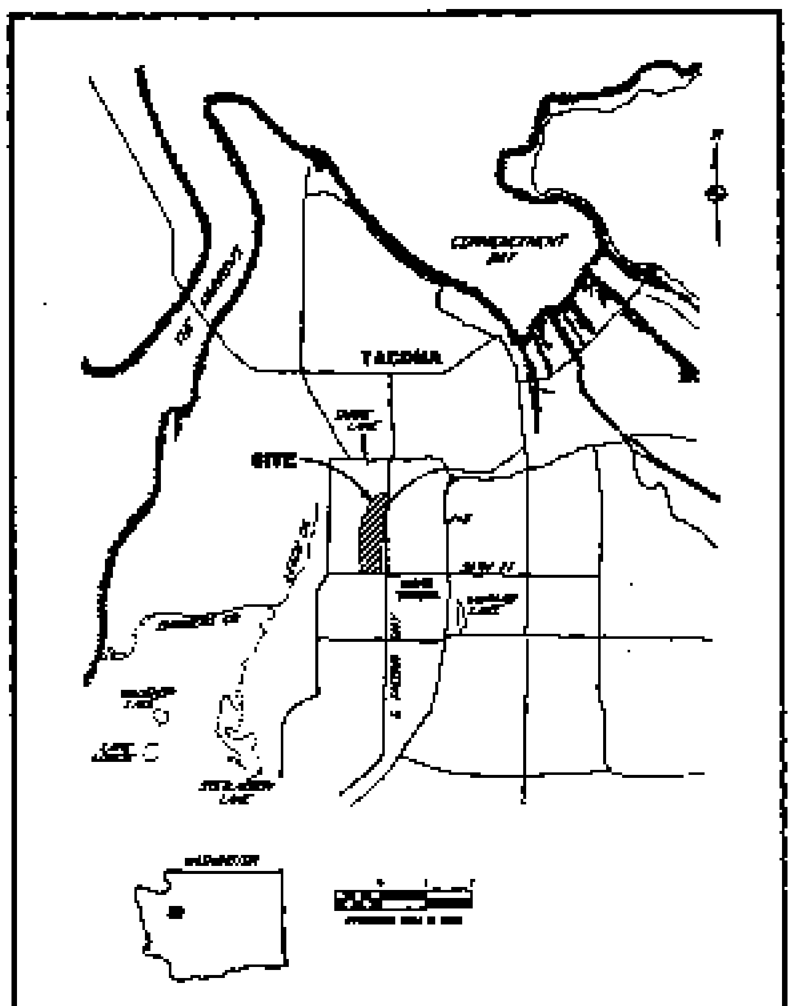
RECORD DRAWINGS
THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY
and AMSTED INDUSTRIES

List of Drawings

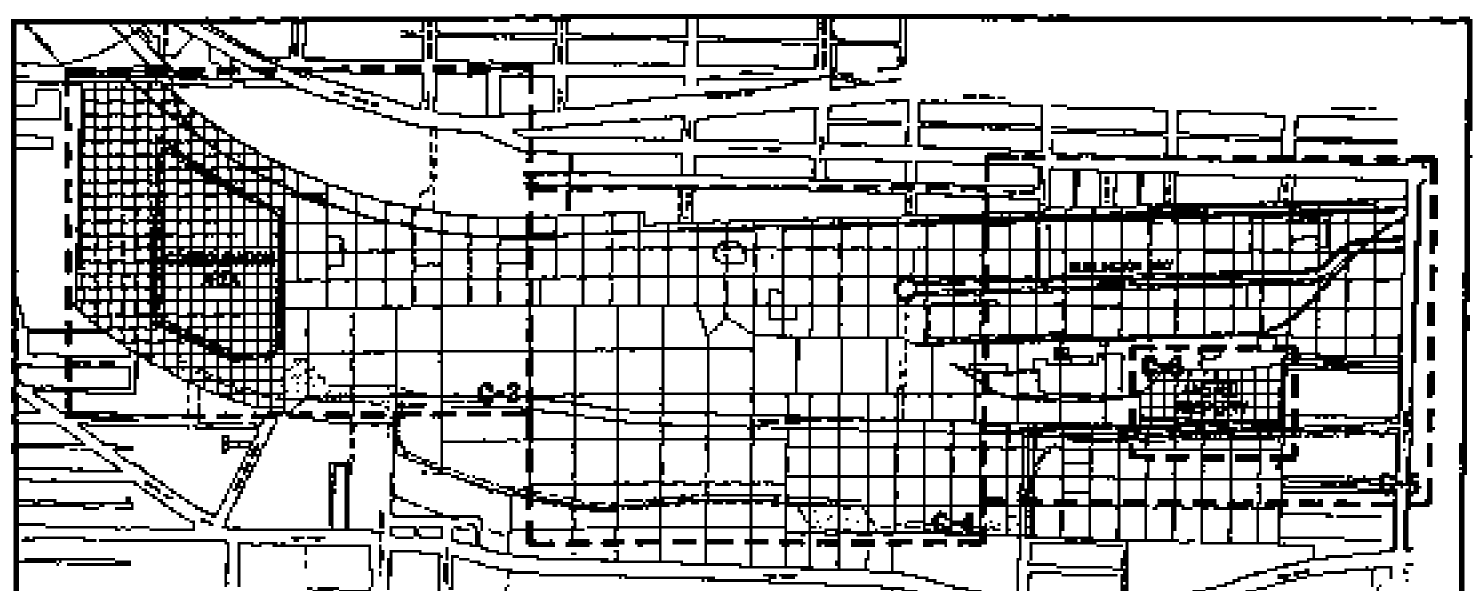
Drawing No.	Drawing Title
G-1	TITLE SHEET
G-2	GRID SUMMARY
C-1	NOT USED
C-2	NOT USED
C-3	NORTH SECTION
C-4	CENTRAL SECTION
C-5	SOUTH SECTION
C-6	AMSTED PROPERTY
C-7	DETAILS

ABBREVIATIONS

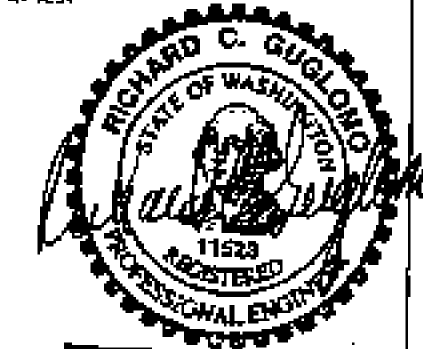
"	INCHES
'	FEET
&	AND
BNR RY	BURLINGTON NORTHERN RAILROAD RAILYARD
BNR DY	BURLINGTON NORTHERN RAILROAD DISMANTLING YARD
BNSF	THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY
DWG	DRAWING
E	EAST OR ELECTRICAL
(E), EXIST	EXISTING
EL., ELEV	ELEVATION
FT	FEET
G	GAS
ID	IDENTIFICATION
IE	INVERT ELEVATION
MG/KG	MILLIGRAMS PER KILOGRAM
MISC	MISCELLANEOUS
MIN	MINIMUM
MH	MANHOLE
N	NORTH
ND	NON-DETECT
PAHs	POLYNUCLEAR AROMATIC HYDROCARBONS
PCBs	POLYCHLORINATED BIPHENYLS
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
RR	RAILROAD
S	SOUTH
SW	STORM SEWER
SS	SANITARY SEWER
T	TELEPHONE
UST	UNDERGROUND STORAGE TANK
W	WATER OR WEST



Project Site Vicinity Map



Project Site Map



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TITLE SHEET	The Burlington Northern and Santa Fe Railway Company	SOUTH TACOMA FIELD Remedial Design	Amsted Industries	Kennedy/Jenks Consultants				G-1

GRID EXCAVATION SUMMARY

GRID NUMBER	AVERAGE EXCAVATION DEPTH (FT)	AVERAGE BACKFILL DEPTH (FT)
258	1	0.5
259	2	1.5
260	2	1.5
264	1	0.5
265	2	1.5
265	2	1.5
284	3	2.5
272	1	0.5
273	2	1.5
274	2	1.5
278	1	0.5
277	1	0.5
278	1	0.5
279	1	0.5
280	1	0.5
285	1	0.5
290	1	0.5
292	1	0.5
293	3	1.5
294	1	0.5
295	1	0.5
298	1	0.5
299	1	0.5
300	2	1.5
301	3	2.5
302	2	1.5
305	2	1.5
312	1	0.5
313	2	1.5
314	1	0.5
333	1	0.5
334	2	1.5
343	1	0.5
344	2.5	2.0
345	2	1.5
348	1	0.5
353	1.5	1.0
354	1.5	1.0
355	1.5	1.0
356	2	1.5
357	2	1.5
385	2.5	2.0
388	1	0.5
389	1	0.5
390	1	0.5
411	1.5	1.0
416	1	0.5
417	2	1.5
418	1.5	1.0
431	1	0.5
432	2	1.5
433	2	1.5
457	1	1.0
460	3	2.5
461	2	1.5
480	1	0.5
485	2.5	2.0
484	2.5	2.0
500	3	2.5
501	2	1.5
515	1.5	0.5
530	3	2.5
532	2	1.5
533	2.5	2.0
535	1	1.0
537	1	0.5
538	2	1.5
541	1.5	1.0
542	1	0.5
543	1.5	1.0
544	1	0.5
545	1	0.5
546	1	0.5
547	1	0.5
548	1	0.5
549	1	0.5
550	1	1.0
554	1	0.5
558	1	0.5

GRID NUMBER	AVERAGE EXCAVATION DEPTH (FT)	AVERAGE BACKFILL DEPTH (FT)
561	1	0.5
562	1	0.5
563	1	0.5
568/570	1	0.5
573	1	0.5
574	1	1.0
575	1	0.5
576	1	1.0
587	1	0.5
804/805	1	0.5
806	1	0.5
807	1	0.5
814	1	0.5
818	1	0.5
827	1	0.5
838	2.5	1.5
839	2	1.0
840	1	0.5
849	2	1.0
850	1	0.5
858	2	1.0
860	1	0.5
862	1	0.5
863	1	0.5
876	1	0.5
877	1	0.5
878	1	0.5
879	1	0.5
880	1	0.5
700	1	0.5
701	1	0.5
702	1	0.5
703	1	0.5
704	1	0.5
730	1	0.5
739	1	0.5
740	1	0.5
759/776	1	0.5
789	1.5	0.5
794	1	0.5
811	2	1.0
830	2	1.0
831	1	0.5
832	2	1.0
833	1	0.5
868	1	0.5
870	1	0.5
885	3.5	1.0
887	3.5	1.0
890	1	1.0
892	1	1.0
906	1	1.0
907	1.5	1.0
908	3.5	1.0
909	3.5	1.0
911	3.5	1.0
913	1	1.0

NOTES

1. DEPTHS SHOWN ARE APPROXIMATE. SOME PORTIONS OF THE GRID MAY HAVE BEEN EXCAVATED TO DEPTHS OTHER THAN SHOWN. SEE SHEETS C-3 TO C-5 FOR ADDITIONAL INFORMATION.
2. SEE SHEET C-8 FOR GRIDS 798–804, 806–810, 816–820, 825–829, 834–839, 844–848, AND 853.

RICHARD C. GUGLIOMO
STATE OF WASHINGTON
71523
REGISTERED
PROFESSIONAL ENGINEER

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GRID SUMMARY

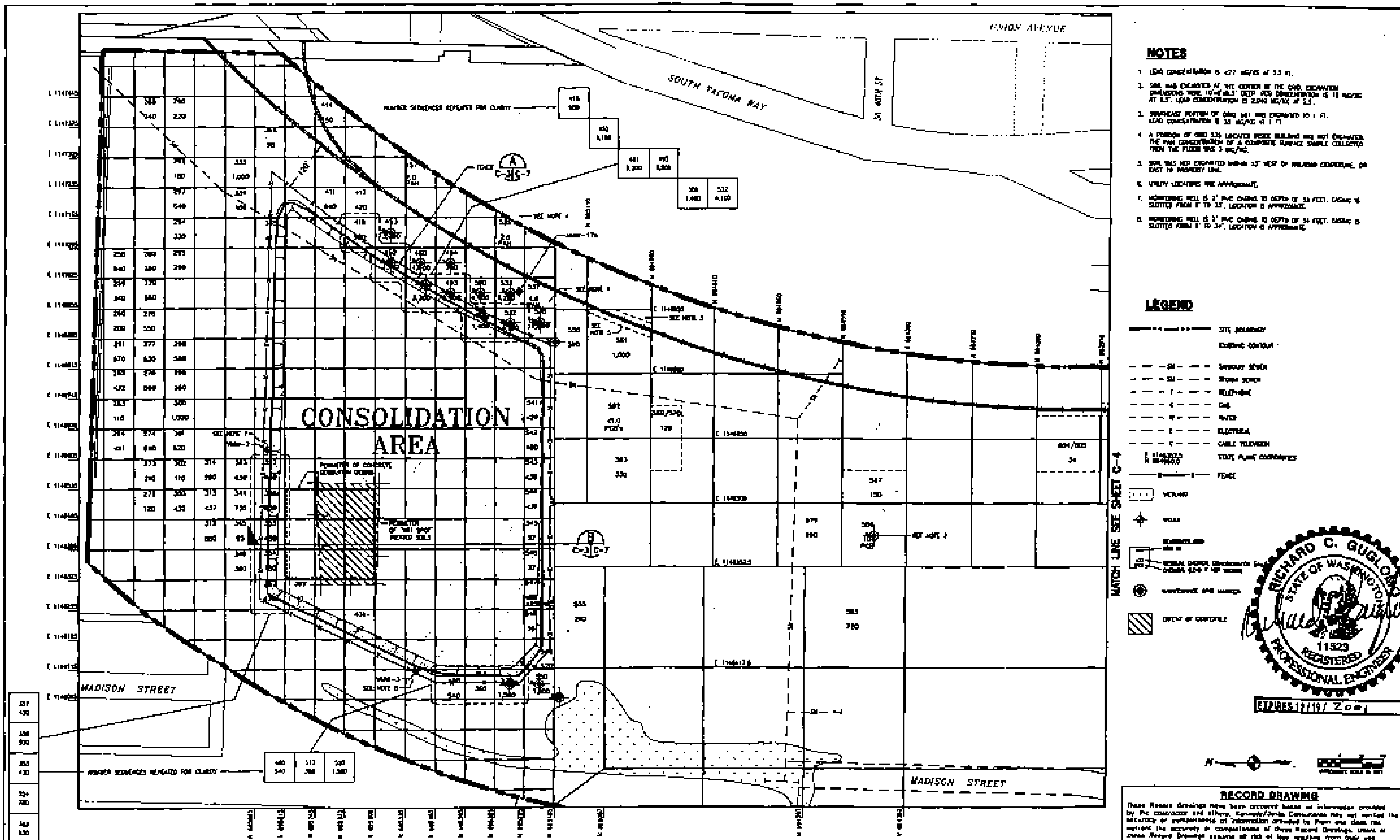
The Burlington Northern and Santa Fe Railway Company

SOUTH TACOMA FIELD
Remedial Design

Amerind Industries

Kennedy/Jenks Consultants

G-2



NORTH SECTION	Burlington Northern and Santa Fe Railway Company	SOUTH TACOMA FIELD Remedial Design	Amsted Industries	Kennedy/Jenks Consultants	C-3

[redacted]

ADAMS STREET

S. 46TH ST.

MATCH LINE SEE SHEET C-3

MATCH LINE SEE SHEET C-5

MADISON STREET

NOTES

1. ELECTRICAL, STORM, WATER, TELEPHONE, SANITARY (HIGH COST LOCATION).
2. LEAD CONCENTRATION <249 MG/KG @ 3.5 FT.
3. ARSENIC CONCENTRATION <81 MG/KG @ 3.5 FT.
4. FORMER BORING LOCATION, ENCOUNTERED 10'x14'x3.5' DEEP LEAD CONCENTRATION OF 590 MG/KG @ 3.5 BGS.
5. SOIL WAS NOT ENCOUNTERED WITHIN 4' WEST OF RAILROAD EASEMENT, OR EAST TO THE PROPERTY LINE.
6. LEAD CONCENTRATION = 9,868 MG/KG @ 3.0 FT.

LEGEND

- PROPERTY BOUNDARY
- EXISTING CONTOUR
- SANITARY SEWER
- STORM SEWER
- TELEPHONE
- GAS
- WATER
- ELECTRICAL
- CABLE TELEVISION
- FIRE HYDRANT
- GRID PLANE COORDINATES
- UST = UNDERGROUND STORAGE TANK (REMOVED)
- WETLAND
- WELLS
- MONITORING WELL
- TEMPORARY SOIL BORING
- MONUMENT CASE MARKER

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N

SCALE: 1" = 50'

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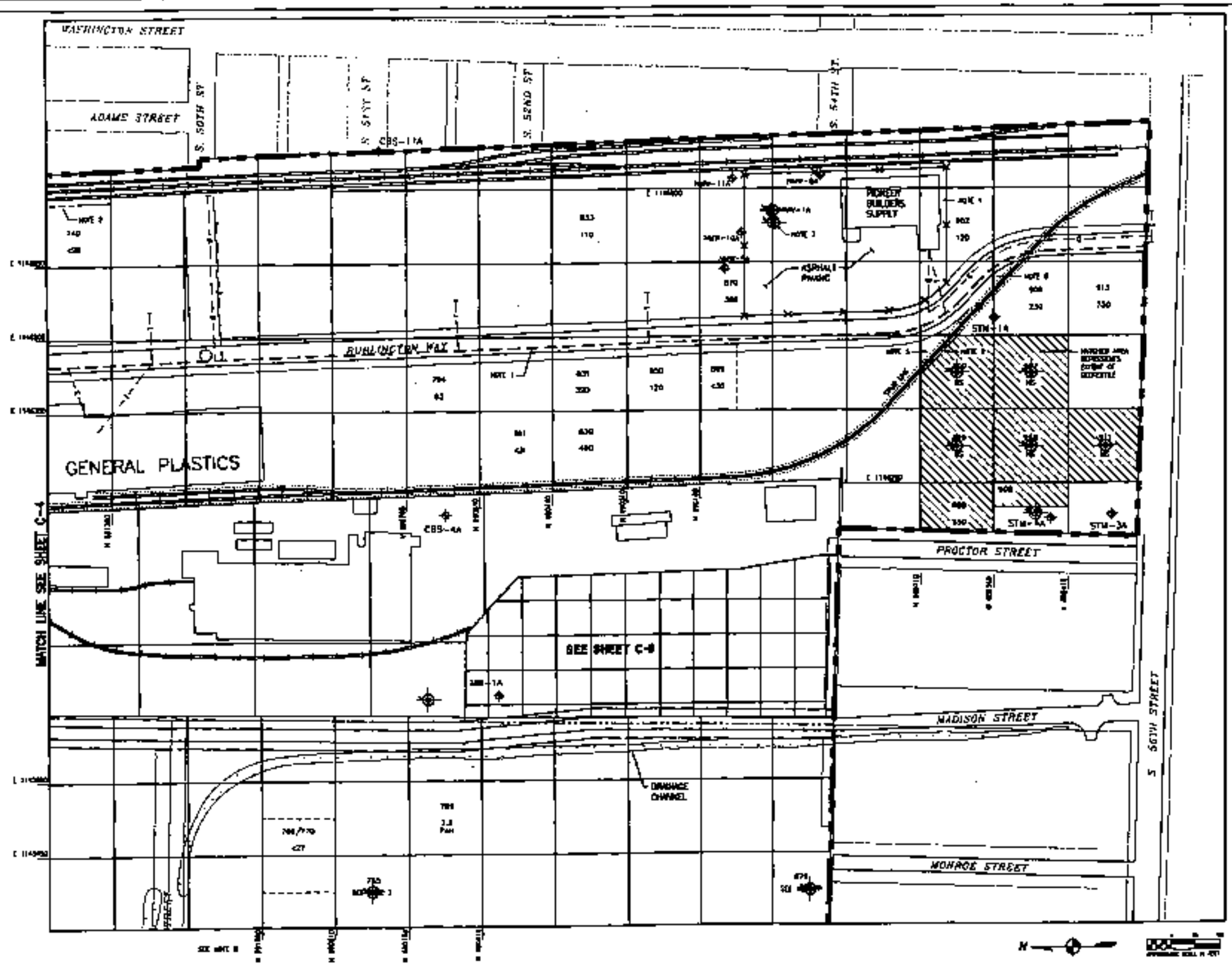
CENTRAL SECTION	Burlington Northern and Santa Fe Railway Company	SOUTH TACOMA FIELD Remedial Design	Ansted Industries	Kennedy/Jenks Consultants

NO.	BY	DESCRIPTION	DATE
1	S/W	RECORD DRAWING	12/16

DES. CHK'D	MAS/CPH
DES. SUPV'R	SPH
CONST. ENGR	JDL/CPH
PROJ. ENGR	RCG
PROJ. MGR	AS SHOWN

C-4



NOTES

1. ELECTRICAL, CABLE TV, GAS, TELEPHONE, SPRINKLER (NOT EXACT LOCATION).
2. SOIL WAS NOT EXCAVATED WITHIN 15' RADII OF GROUNDED CONCRETE, OR EAST TO PROPERTY LINE, OR 10' ON OTHER SIDE OF SPUR LINES.
3. SOIL WAS EXCAVATED (10'x10'x1' DEEP) FROM BENEATH THE ASPHALT COVER FOR REMEDIAL PCB CONCENTRATION = 0.12 MG/KG AT 1'.
4. SOIL WAS NOT EXCAVATED BETWEEN BUILDING AND FENCE. LEAD CONCENTRATIONS OF FOUR DISCRETE SAMPLES COLLECTED AT THE SURFACE AND AT 1' BELOW THE SURFACE WERE BELOW THE CLEANUP LEVEL.
5. EXCAVATED TO 1' DEPTH, PCB CONCENTRATION = 2.8 MG/KG AT 1'.
6. EXCAVATED TO 1' DEPTH, LEAD CONCENTRATION = 130 MG/KG
7. MONUMENTS MARKED LOCATED IN THIS AREA. SEE C-7.
8. APPROXIMATE LOCATION OF MONITORING WELL PAIR. SEE C-7.

LEGEND

- SITE BOUNDARY
- EXISTING CONTOUR
- SANITARY SEWER
- STORM SEWER
- TELEPHONE
- GAS
- WATER
- ELECTRICAL
- CABLE TELEVISION
- STATE PLANE COORDINATES
- TEST PIT
- WELL
- MONUMENT
- MONITORING WELL NUMBER

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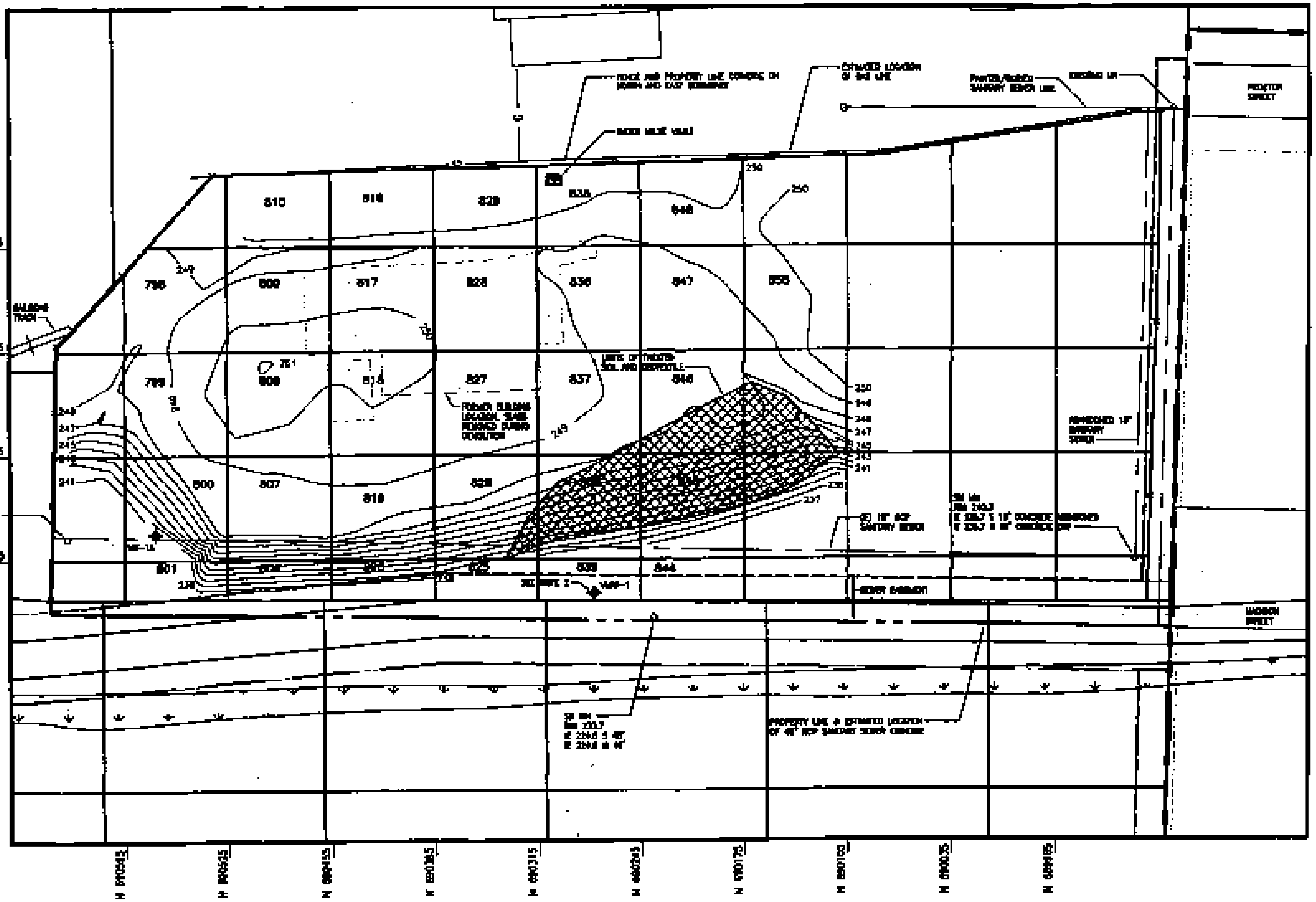
SOUTH SECTION	Burlington Northern and Santa Fe Railway Company	SOUTH TACOMA FIELD Remedial Design	Ameted Industries
Kennedy/Jenks Consultants			C-5



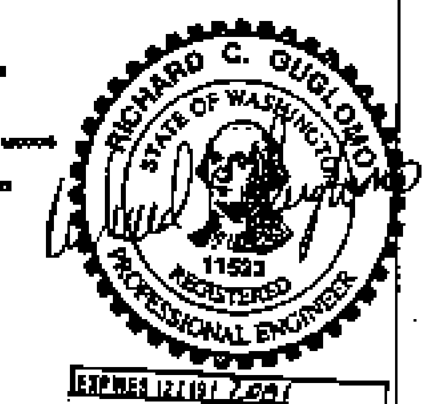
NOTES:

GRID	EXCAVATION	RESIDUAL LEAD CONCENTRATION (MG/KG)	CAPPED
798	ND	7550	1 FT MIN
799	ND	1010	1 FT MIN
800	ND	177	ND
801	ND	718	ND
806	ND	NOT SAMPLED	ND
807	ND	NOT SAMPLED	1 FT ON FLAT PORTION
808	ND	4580	1 FT MIN
809	ND	7080	1 FT MIN
810	ND	2370	1 FT MIN
816	ND	7530	1 FT MIN
817	3.5 FT OUTSIDE OF BUILDING FOOTPRINT	1500	1 FT MIN
818	1 FT OUTSIDE OF BUILDING FOOTPRINT	3700	1 FT MIN
819	1 FT	7200	1 FT ON FLAT/1.5 FT ON SLOPE MIN
[illegible]	1 FT	1000	1.5 FT MIN
[illegible]	ND	NOT SAMPLED	ND
[illegible]	TEST PIT	[illegible]	1 FT ON FLAT/1.5 FT ON SLOPE MIN
[illegible]	1 FT OUTSIDE OF BUILDING FOOTPRINT	[illegible]	1 FT MIN
[illegible]	ND	[illegible]	1 FT MIN
[illegible]	ND	4770	1 FT MIN
[illegible]	1 FT	4300	1 FT MIN
[illegible]	1 FT OUTSIDE OF BUILDING FOOTPRINT	14000	1 FT MIN
[illegible]	ND	NON-DETECT (ND)	1 FT MIN
[illegible]	MAJORITY OF GRID EXCAVATED TO NATIVE	6200 TO ND	1 FT ON FLAT/1.5 FT ON SLOPE MIN
[illegible]	ND	643	ND
844	ND	NOT SAMPLED	ND
[illegible]	ND	184	1.5 FT MIN
[illegible]	ND	700	1 FT MIN
[illegible]	ND	4050	1 FT MIN
[illegible]	ND	2540	1 FT MIN

1. UTILITY AND EASEMENT LOCATIONS ARE APPROXIMATE.
2. MONITORING WELL IS 2" PVC CASING TO DEPTH OF 29'. CASING IS SLOTTED FROM 4' TO 29'. LOCATION IS APPROXIMATE.

LEGEND

PROPERTY LINE
CONTOUR
FENCE
GAS LINE
STATE PLANE COORDINATES
WETLANDS
WELLS



APPROXIMATE SCALE IN FEET

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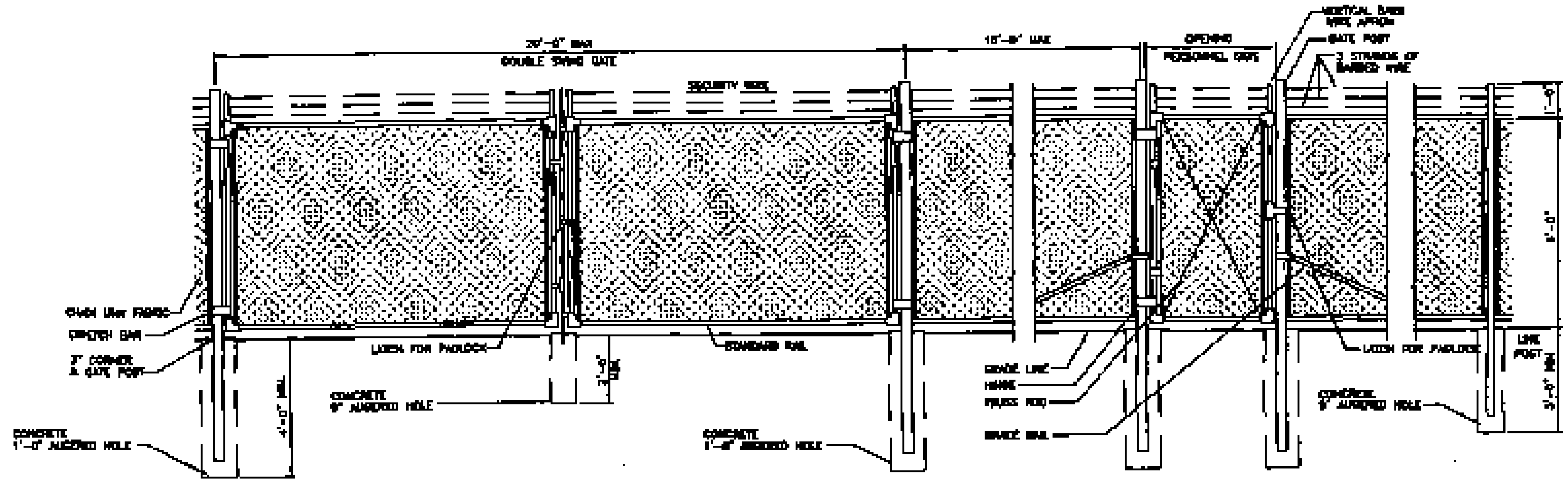
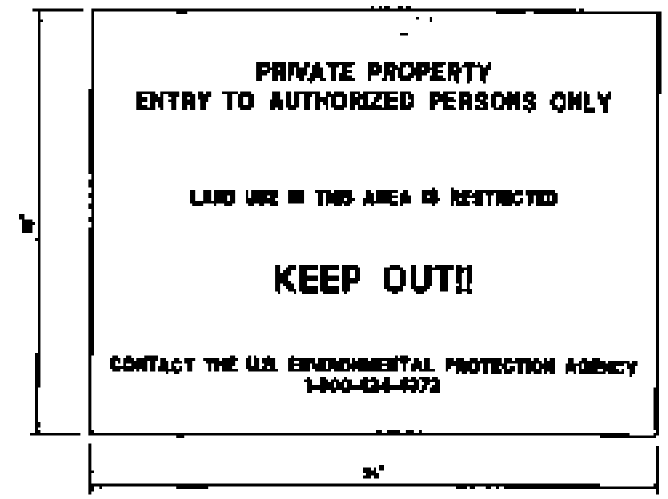
AMSTED PROPERTY	Burlington Northern and Santa Fe Railway Company	SOUTH TACOMA FIELD Remedial Design	Amsted Industries	Kennedy/Jenks Consultants	C-6

SCALE: AS SHOWN



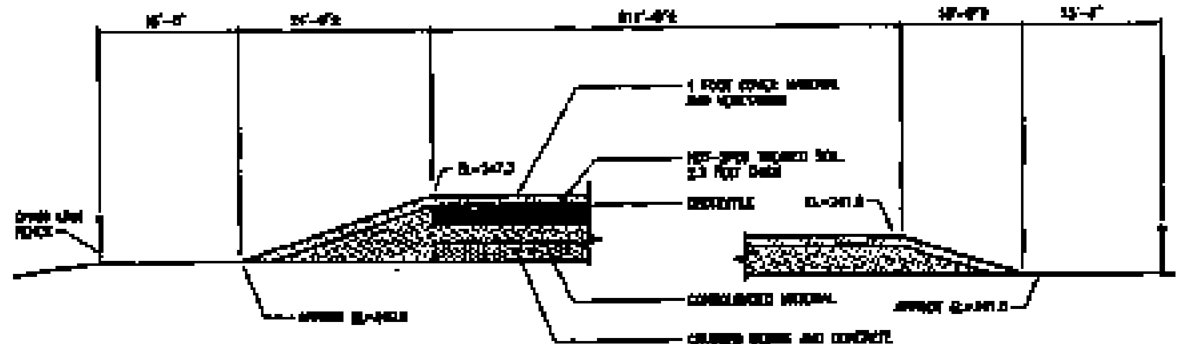
A TYPICAL CHAIN LINK FENCE & GATES
SCALE: NONE



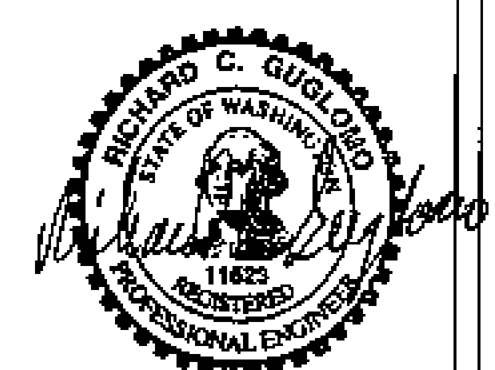
TYPICAL FENCE SIGN
SCALE: NONE

NOTES

1. [illegible]
2. [illegible]



B CROSS SECTION OF CONSOLIDATION AREA
SCALE: NONE



EXPIRES 12/11/2001

RECORD DRAWING

These Record Drawings have been prepared based on information provided by the contractor and others. Kennedy/Jenks Consultants has not verified the accuracy or completeness of information provided to them and does not warrant the accuracy or completeness of these Record Drawings. Users of these Record Drawings assume all risk of loss resulting from their use.

DETAILS	Burlington Northern and Santa Fe Railway Company	SOUTH TACOMA FIELD Remedial Design	Amsted Industries	Kennedy/Jenks Consultants			C-7

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WA 98101

TARGET SHEET

The following document was not imaged.
This is due to the Original being:

X Oversized
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___ Computer Disk
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Other:

**A copy of the document may be requested from the Superfund Records Center.

Document Information

Document ID #: 1176975
File #: TSWSF 20.2
Site Name: CB/STC South Tacoma Field

C - 8
Maintenance Grid Spot Elevations, South Tacoma Field Remedial Design

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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1200 SIXTH AVENUE
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Document Information

Document ID #: 1176975

File #: TSWSF 20.2

Site Name: CB/STC South Tacoma Field

C - 9
Maintenance Grid Spot Elevations, South Tacoma Field Remedial Design

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Document Information

Document ID #: 1176975
File #: TSWSF 20.2
Site Name: CB/STC South Tacoma Field

Figure A - 1
Maintenance Grid Spot Elevations, South Tacoma Field 006015.00/P0SK013

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1200 SIXTH AVENUE
SEATTLE, WA 98101

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File #: TSWSF 20.2

Site Name: CB/STC South Tacoma Field

Figure A - 2
Maintenance Grid Spot Elevations, South Tacoma Field 006015.00/P0SK012

Appendix B

Safety Procedures

APPENDIX B
SAFETY PROCEDURES

BACKGROUND

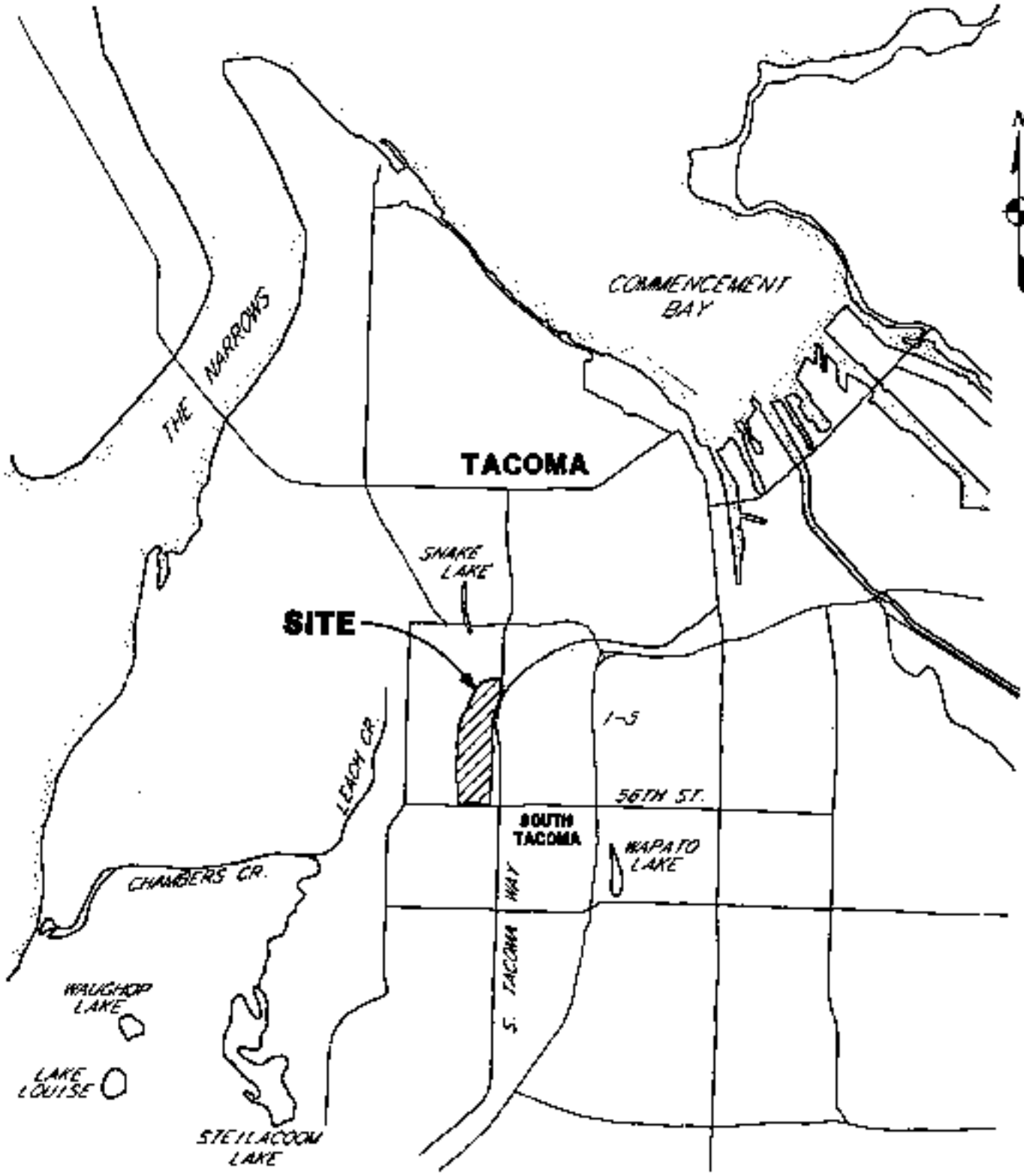
The South Tacoma Field (STF) site is located in the southwestern portion of the City of Tacoma, Washington and consists of an industrial property approximately 260 acres in size (Figure 1).

Previous industrial activities at the STF site resulted in releases of chemicals of concern to site soil and groundwater. A remedial investigation and feasibility study assessed the nature and extent of environmental contamination and evaluated remedial alternatives at the site. Surface soil, and to a lesser extent subsurface soil in these areas is contaminated with lead, arsenic, copper, polychlorinated biphenyls (PCBs), and polynuclear aromatic hydrocarbons (PAHs).

REMEDIAL ACTION ACTIVITIES

Remedial action for the STF site involved:

- Excavating "hot spots" with lead concentrations above 16,000 parts per million (ppm) and arsenic concentrations above 570 ppm and treating this soil.
- Placing treated soil onsite and covering it with 1 foot of clean soil.
- Excavating less contaminated soil, consolidating it, and placing it under at least 1 foot of clean soil or asphalt.
- Capping less contaminated soil in place with 1 foot of clean soil or asphalt.



Kennedy/Jenks Consultants

SOUTH TACOMA FIELD
TACOMA, WA

SITE LOCATION MAP

966124.20/PBSK002

FIGURE 1

- Placing deed restrictions, installing barriers, and taking other actions to limit exposure to contaminated soil and protecting the capped areas.

SOIL CONTAMINATION REMAINING ONSITE

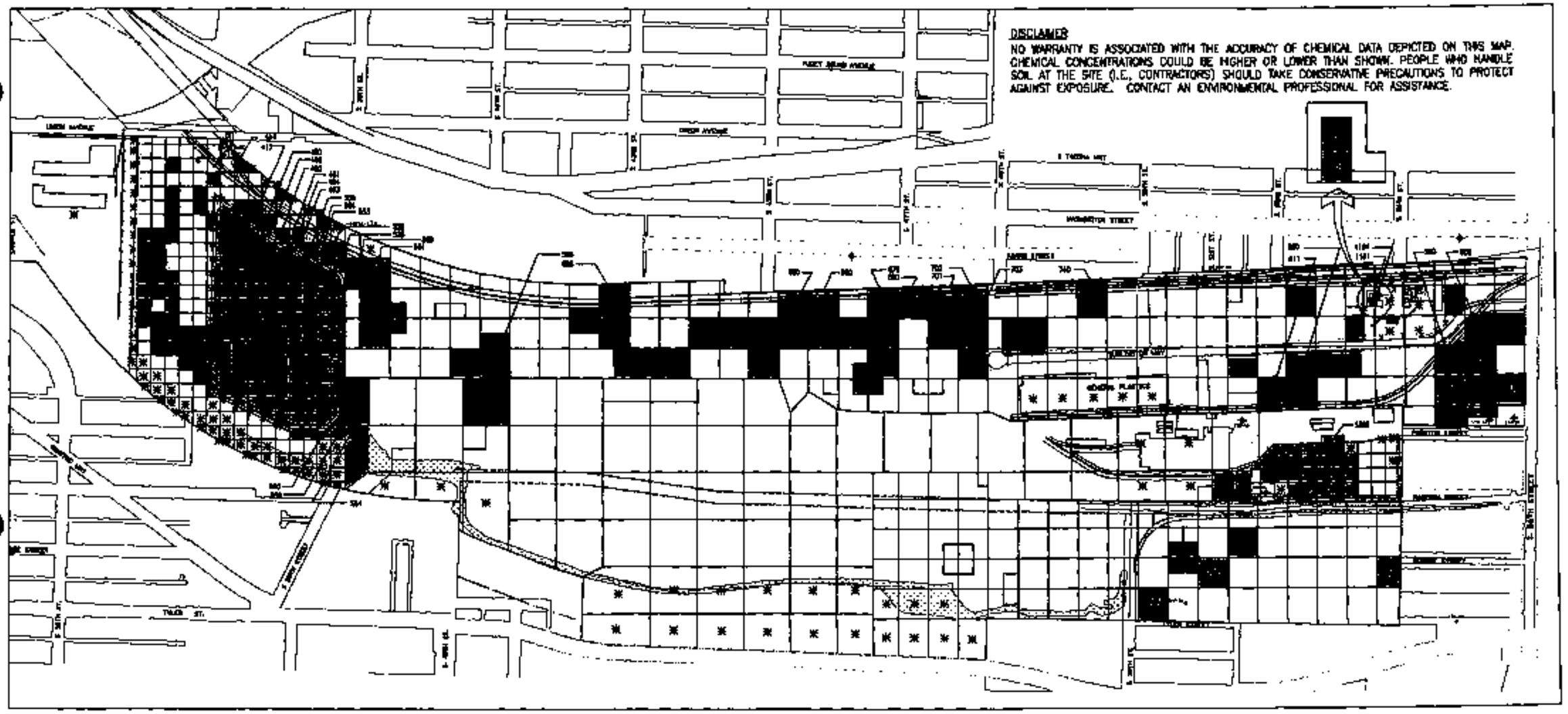
Figure 2 shows the locations at the STF site where contaminated soil is located. The grids on this figure have been characterized by collecting composite samples near the corners and center of each grid. Thus contamination may or may not be present in all areas of each grid. Caution should be taken to characterize suspicious material. Any soil to be disposed of offsite should also be characterized for disposal. Table B-1 describes areas shown on Figure 2 and the actions necessary to protect human health. Table B-2 presents information regarding chemical concentrations detected in soil. Workers who may come into contact with soil above residential cleanup levels should follow, at a minimum, safety precautions described in the Table B-1. Consult an environmental professional for assistance if work involves category 3 and 4 soil (Table B-1).

PROCEDURES FOR MINIMIZING SOIL DISTURBANCES

The BNR Dismantling Yard and Amsted Property containment areas are fenced to reduce the chance of disturbing contaminated soil.

The soil covers prevent direct contact with the hazardous substances remaining at the STF site. Therefore, try to minimize activities that might disturb the covers. Before doing any work in the containment areas, evaluate the proposed project: can you accomplish your goals without disturbing the containment areas? If not, you should consult an environmental professional to design the work to protects workers, others at the site, the public, and the environment.

The containment areas should be used for activities that won't significantly disturb the underlying contaminated soil (for example, parking lots and landscaped areas).



LEGEND

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- GRID POTENTIALLY ABOVE CAPPING LEVELS; NOT REMEDIATED; SAFETY PRECAUTIONS REQUIRED; SEE TABLE B-2 FOR CAPPING EXCEEDENCES

- DRAINAGE CHANNEL
- RAILROAD TRACKS
- FENCE
- BURIED GEOTEXTILE; IDENTIFIES LIMIT OF TREATED OR CONTAMINATED SUBSURFACE SOIL

CAPPING LEVELS

ARSENIC	200 mg/kg
LEAD	1,000 mg/kg
cPAHs (TOTAL)	20 mg/kg
PCBs (TOTAL)	10 mg/kg

NOTE:

1) NO SAMPLING/REMEDIATION CONDUCTED WITHIN STRUCTURES, BURLINGTON WAY RIGHT OF WAY, OR PAVED AREAS; EXCEPT AS NOTED.

N

0 250 500

APPROXIMATE SCALE IN FEET

Kennedy/Jenks Consultants

SOUTH TACOMA FIELD
TACOMA, WA

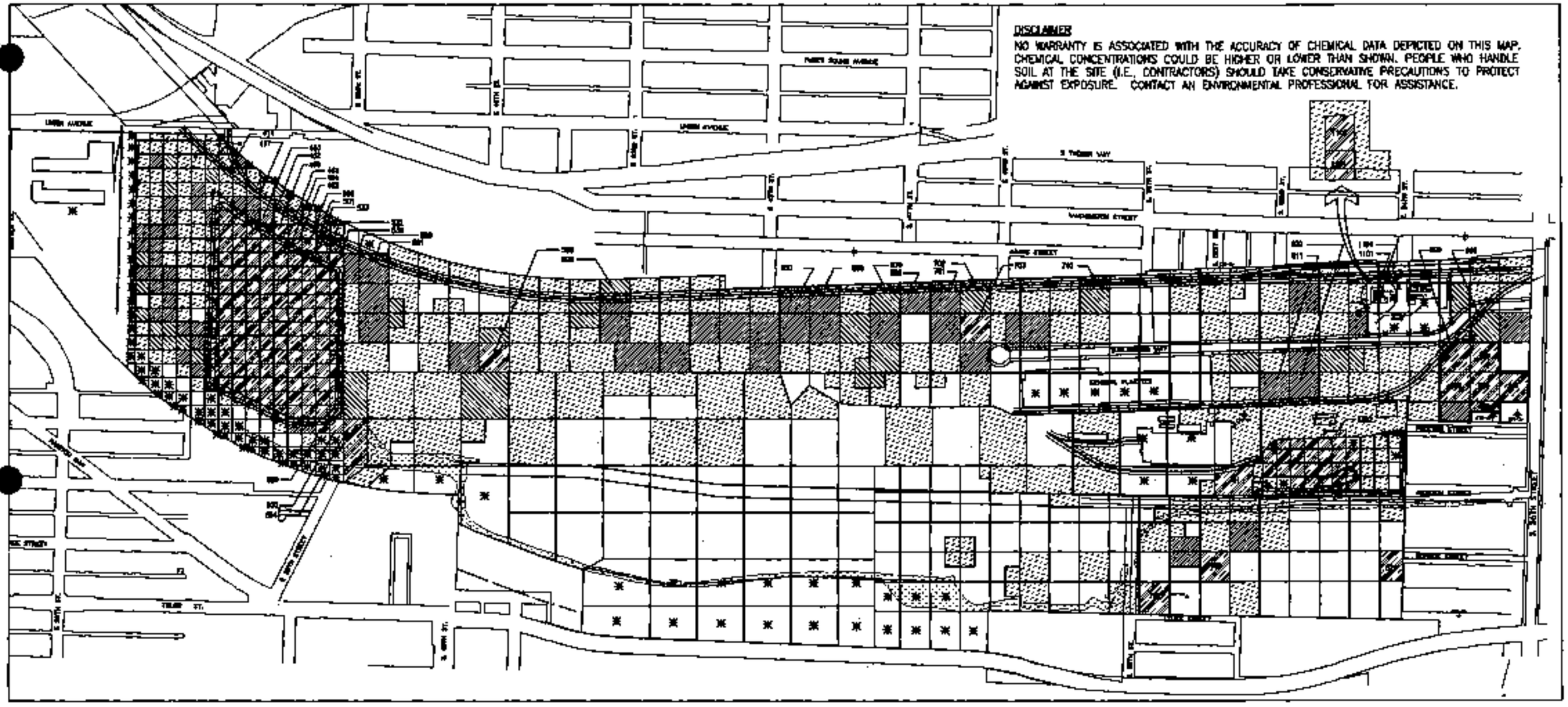
POST-REMEDIAL ACTION SITE CONDITIONS

008015.00/POSK014

Tenant 20.2 Doc # 176975 **FIGURE 2**

DISCLAIMER

NO WARRANTY IS ASSOCIATED WITH THE ACCURACY OF CHEMICAL DATA DEPICTED ON THIS MAP. CHEMICAL CONCENTRATIONS COULD BE HIGHER OR LOWER THAN SHOWN. PEOPLE WHO HANDLE SOIL AT THE SITE (I.E., CONTRACTORS) SHOULD TAKE CONSERVATIVE PRECAUTIONS TO PROTECT AGAINST EXPOSURE. CONTACT AN ENVIRONMENTAL PROFESSIONAL FOR ASSISTANCE.



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N

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APPROXIMATE SCALE IN FEET

Kennedy/Jenks Consultants

SOUTH TACOMA FIELD
TACOMA, WA

POST-REMEDIAL ACTION SITE CONDITIONS

006015.00/P9SK001C

FIGURE 2

TABLE B-1

SOIL HANDLING REQUIREMENTS

Category	Grid Identification	Represents	Comments	Health and Safety	Disposal of Soil	Plan Required?[a]	Contact EPA?[b]
1		Below residential cleanup levels[c]		No special precautions	No special requirements	No	No
2		Above residential cleanup levels but below capping levels[c]		Take routine precautions: ▪ Do not eat, smoke, or drink while working ▪ Wash hands and face thoroughly after working with soil ▪ Brush off or clean vehicles, equipment and tools before leaving the site	In permitted facility[d]	Recommended[a]	No
3		Soil is above capping levels[c]	Covered by at least one foot of clean soil	Workers must meet safety and health training requirements described in WAC[e] 296-62-300	In permitted facility[d]	Yes[a]	Yes
4		Soil is above capping levels[c]	No remediation; contamination may be contained in surface soil	Workers must meet safety and health training requirements described in WAC[e] 296-62-300	In permitted facility[d]	Yes[a]	Yes

Notes:

(a) Suggested plan requirements include, as appropriate:
- Description of the proposed work
- Air monitoring plan
- Plan for appropriate transport and disposal of soil
- Health and safety plan
- Sampling and analysis plan.

(b) Call EPA at 1-800-424-4372.

(c) Cleanup levels are as follows:
- Arsenic: Residential: 20 mg/kg Capping: 200 mg/kg
- Lead: Residential: 250 mg/kg Capping: 1,000 mg/kg
- cPAHs: Residential: 1 mg/kg Capping: 20 mg/kg
- PCBs: Residential: 1 mg/kg Capping: 10 mg/kg

(d) Consult with an environmental professional to address these issues.

(e) Washington Administrative Code.

TABLE B-2

LOCATION AND DEPTH OF CAPPING EXCEEDENCES
South Tacoma Field

Location Number	Chemical Of Concern	Concentration (mg/kg)	Depth (Feet bgs)
Grid Capped with Soil/Asphalt			
452	Lead	1,100	2
453	Lead	3,100/3,600[a]	2
460	Lead	4,600	3
461	Lead	3,300	2
493	Lead	6,900	2.5
494	Lead	750/2,100[b]	2.5
500	Lead	4,400	3
501	Lead	1,400	2
525	Lead	1,500	3
532	Lead	4,100	2
533	Lead	1,200	2.5
538	Lead	2,000/1,600[a]	2
550	Lead	1,100	1
554	Lead	1,970	2
566	PCBs/Lead	18/2,040	4.5/4
703	Lead	2,060	2
767	PAHs	23.5	7
785	PAHs	20.6	7
791	Lead	2,360	7
879	Lead	1,100	12
1101	PCBs	11	17
1104	PCBs	39	20
1392	Lead	1,820	0
Portion of Grid Not Capped (Not Remediated)[c]			
414	Lead	4,840	0
417	Lead	1,400	0
494	Lead	3,140	0
533	Lead	22,700	0
537	PAHs	25.7/38.5[a]	0
558	Lead	2,360	0
561	Lead	3,040	0
606	Lead	1,060	0
650	Lead/Arsenic	1,990/395	0
660	Lead	2,930	0
679	Lead	1,260	0

TABLE B-2

LOCATION AND DEPTH OF CAPPING EXCEEDENCES
South Tacoma Field

Location Number	Chemical Of Concern	Concentration (mg/kg)	Depth (Feet bgs)
680	Lead	1,610	0
701	Lead	1,240	0
702	Lead	1,210	0
740	Lead	2,720	0
811	Lead	2,860	0
830	Lead	1,220	0
900	PAHs[d]	24.5	0
905	Lead	2,070	0

Notes:

(a) The second value represents the analytical result of a field duplicate sample.
(b) The second value represents the analytical result of a spill sample collected by ICF Kaiser.
(c) Small portions of these grids are not capped due to their location near an active rail line. Extent of area not capped is:
- Within 15 feet of centerline of track for grids 414, 417, 494, 533, 537, 558, 561, 606, and 740.
- Within 15 feet west of the tracks and east of the tracks to the property line for grids 650, 660, 679, 680, 701, and 702.
- Within 8 feet of centerline of spur tracks in grids 611, 830, 900, and 905.

(d) The second value represents the analytical result of a second sample collected 5 March 1992.

Structures within the containment areas should use lightweight, spread, or shallow foundations whenever possible. Build structures and excavations to minimize the lateral extent and depth of the disturbed area. Excavate and shore the areas using methods that minimize the amount of contaminated soil that is removed. Consult a professional engineer for help.

PROCEDURES FOR PROPER DISPOSAL OF SOIL

Follow these recommendations when excavating soil that is identified as above capping levels (see Figure 2):

- Schedule work when significant precipitation is not anticipated. This will limit stormwater runon into contaminated areas, reduce leaching of contaminants, and minimize the chance of taking contaminants offsite on vehicles.

- Minimize the surface area and depth of the disturbance of the containment area.

- Use excavation and shoring techniques that minimize the amount of contaminated soil that is removed.

If contaminated soil is to be removed offsite for disposal, it must be characterized under the Washington Dangerous Waste Regulations to assess proper disposal requirements. Representative samples should be collected for analysis of constituents of concern that could characterize the soil as dangerous waste. Onsite reuse of soil with chemicals above capping levels must be approved by U.S. Environmental Protection Agency (EPA) and should allow for containment beneath at least 1 foot of soil with vegetation, or with asphalt. Any modifications should be reported to the site owner so that the Site Development and Institutional Controls Plan can be updated to reflect changes in conditions onsite.

HEALTH AND SAFETY PLAN

If you handle soil from grid categories 3 or 4 (Table B-1), you should prepare a health and safety plan to describe how you would protect people who will be handling the soil. Consult an environmental professional for assistance.

NOTIFYING EPA AND PREPARING A PLAN

You must notify the EPA (1.800.424.4372) if you plan to disturb soil in the containment areas or soil that is contaminated. You should prepare a plan to give to EPA that contains information described in Table B-1. Consult an environmental professional for assistance.

Appendix C

Fact Sheet

9 March 2000

Business Owner/Lessee
TitleDepartment
DivisionBranch
COMPANY
StreetAddressMailStop
POBox
CityStateZip

Subject: Safety Procedures for Work Involving Soil at
The Former South Tacoma Field Superfund Site
Tacoma, Washington
K/J 966124.53

Dear Business Owner/Lessee:

Based on available information, you own or lease property at the former South Tacoma Field Superfund site in Tacoma, Washington. This area was part of a Superfund cleanup that was completed in 1999 (see the attached fact sheet). Contaminated soil remains at the site. If you, your employees, or others hired by you handle soil in these areas, you must take precautions described in the attached safety procedures document.

Please call the U.S. Environmental Protection Agency at 1-800-424-4372 if you have any questions.

Sincerely,

Signer
Title

Enclosures (fact sheet and safety procedures)

Superfund Fact Sheet

South Tacoma Field Site

Tacoma, Washington

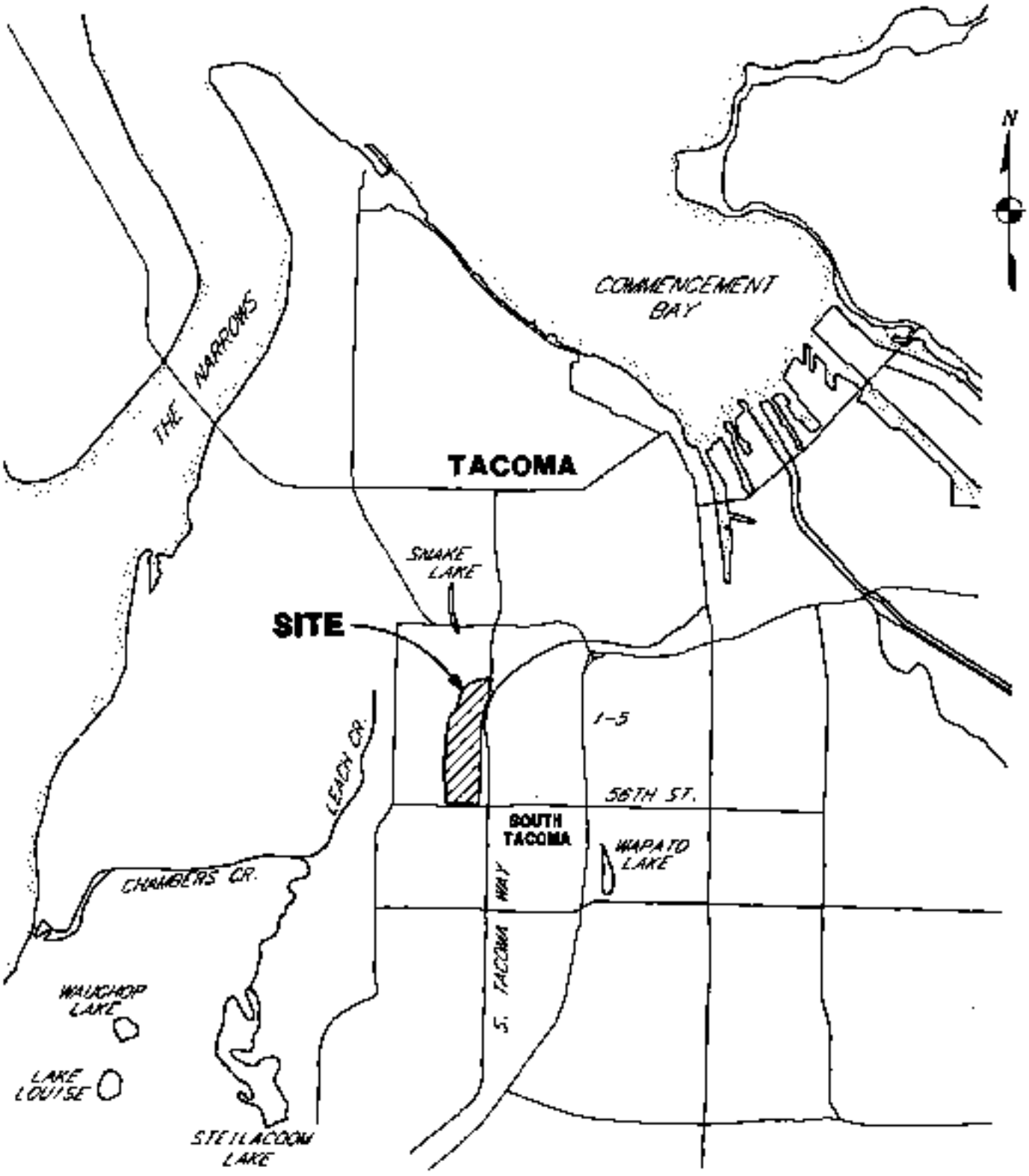
SOIL CLEANUP REMEDY COMPLETED

In late 1999, soil cleanup actions at the South Tacoma Field (STF) Superfund Site (see Figure 1) site were completed. This fact sheet describes the cleanup, discusses the remaining hazards at the site, and urges your cooperation to respect the cleanup facilities.

BACKGROUND

The STF site is located in the southwestern portion of the City of Tacoma, Washington and consists of an industrial property approximately 260 acres in size (Figure 1). The site is mostly open fields of grass with a few industrial and commercial facilities.

Previous industrial activities at the STF site resulted in releases of chemicals of concern to site soil and groundwater. A remedial investigation and feasibility study assessed the nature and extent of environmental contamination and evaluated remedial alternatives at the site. Surface soil, and to a lesser extent subsurface soil, in these areas were contaminated with lead, arsenic, copper, polychlorinated biphenyls (PCBs) and polynuclear aromatic hydrocarbons (PAHs).



Kennedy/Jenks Consultants

SOUTH TACOMA FIELD
TACOMA, WA

SITE LOCATION MAP

966124 20/PBSK002

FIGURE 1

ELEMENTS OF THE CLEANUP REMEDY

The remedy involved:

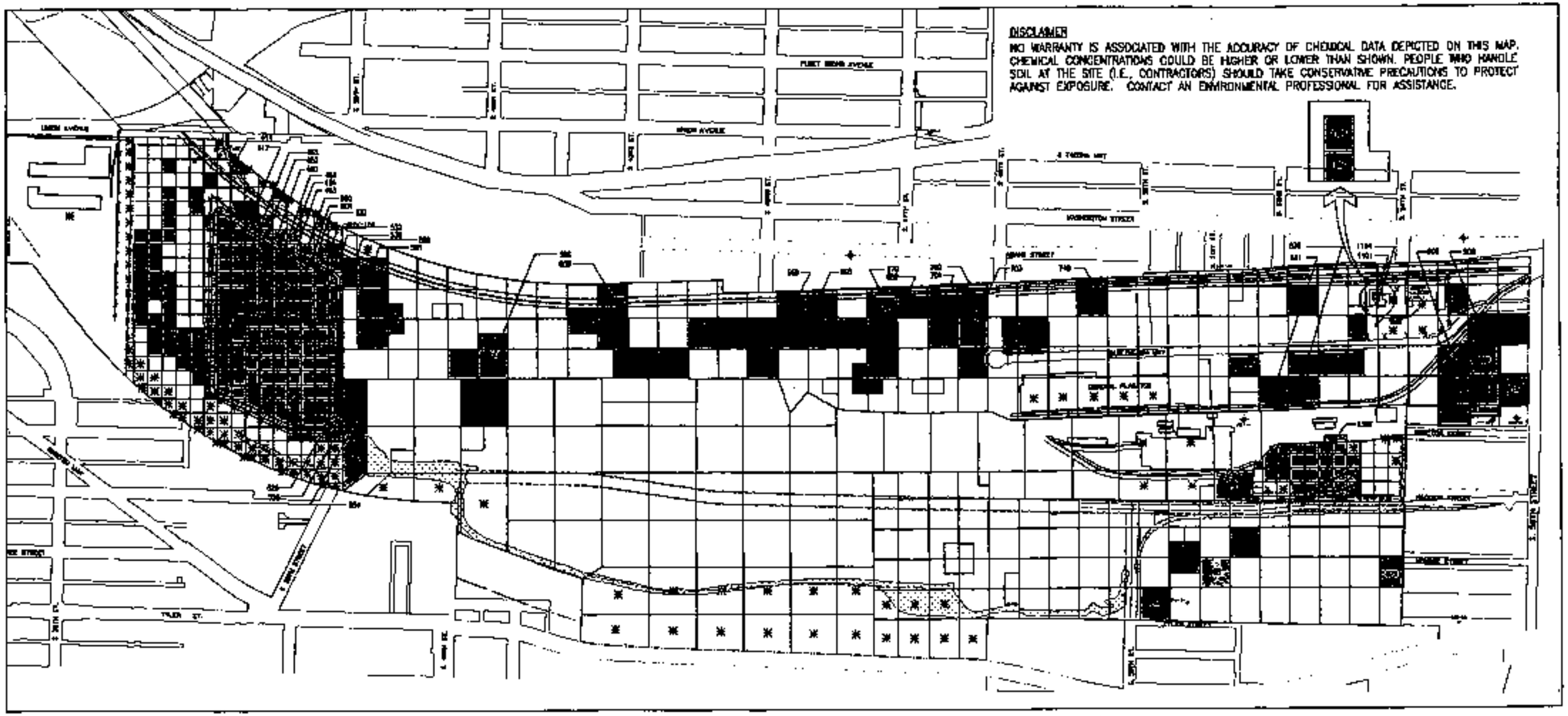
- Excavating "hot spots" of contaminated soil with concentrations of lead above 18,000 part per million (ppm) and arsenic concentrations above 570 ppm. This soil was treated and placed under a soil cap at the site.
- Excavating less contaminated soil, consolidating it, and placing it under 1 foot of clean soil.
- Capping less contaminated soil in place with 1 foot of clean soil.
- Placing deed restrictions, installing barriers, and taking other actions to limit exposure to contaminated soil and to protect the capped areas.

HAZARDS REMAINING AT THE SITE

Soil conditions at the site are appropriate for industrial locations. Workers are unlikely to experience unacceptable exposures if soils are undisturbed. Contaminated soil remains at the site under a minimum 1-foot soil cap (in most locations) as shown in Figure 2. In areas where safety concerns did not allow for removal or containment of potentially contaminated soil (see purple areas on Figure 2), special precautions should be followed to characterize this soil or for proper disposal if it is disturbed.

The soil caps have been seeded with grass, and the main consolidation areas are fenced. The contaminants in soil still pose a threat if human beings come into contact with them. The soil cap and fence surrounding the cap are intended to protect human health, but *we need your help.*

Please do not trespass on the site, which is private property. Particularly, please stay out of the fenced areas.



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CAPPING LEVELS

ARSENIC	200 mg/kg
LEAD	1,000 mg/kg
cPAHs (TOTAL)	20 mg/kg
PCBs (TOTAL)	10 mg/kg

NOTE:

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N

0 250 500

APPROXIMATE SCALE IN FEET

Kennedy/Jenks Consultants

SOUTH TACOMA FIELD
TACOMA, WA

POST-REMEDIAL ACTION SITE CONDITIONS

006015.00/POSK014

FIGURE 2

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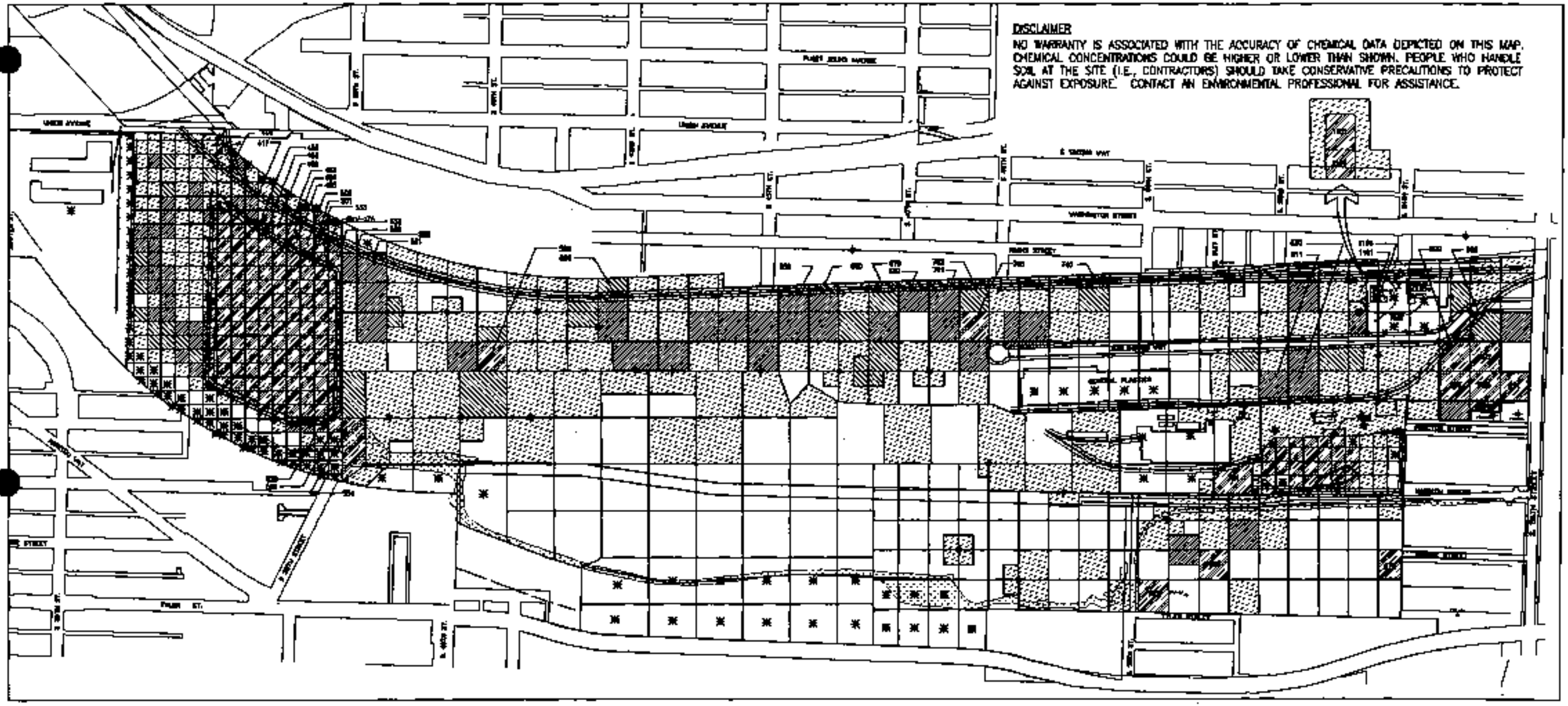

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APPROXIMATE SCALE IN FEET

Kennedy/Jenks Consultants

SOUTH TACOMA FIELD
TACOMA, WA

POST-REMEDIAL ACTION SITE CONDITIONS

006015.00/P9SK001D

FIGURE 2

This is private property, and unauthorized visitors are not allowed. Please respect the rights of the property owners and do not come onsite.

NEXT STEPS

Groundwater and soil in the vicinity of Pioneer Builders Supply is being evaluated for possible remediation. Groundwater samples have been collected and analyzed. A decision to remediate groundwater, if necessary, will be made soon.

An underground tank was discovered in the eastern section of the site during remediation. During removal, contamination of soil with petroleum products was discovered. Most of the contaminated soil was removed offsite. Residual soil and possible groundwater contamination are being evaluated under Washington State Department of Ecology's voluntary cleanup program for possible remediation.

MORE INFORMATION

Copies of documents relating to the South Tacoma Field site can be found at:

Tacoma Public Library
Main Library, Northwest Room
1102 Broadway
Tacoma, Washington

U.S. Environmental Protection Agency
Park Place Building
1200 Sixth Avenue, Superfund Records Center
Seattle, Washington 98101

or call

Cami Grandinetti, Project Manager, at (206) 553-6696 or
Jeanne O'Dell, Community Involvement Coordinator at (206) 553-6919.
Call toll free at 1-800-424-4372 from 8:00 a.m. to 4:30 p.m., Monday through Friday.